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The Logic of Morality:
Investigating the Relationship between Logical and Moral Reasoning

Senior Honors Thesis
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Defended and Approved 21 April 2005

4/21/05

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The Logic of Morality:

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Abstract

According to Kohlberg's theory of moral development, moral reasoning is related to the development of logical reasoning through the advancement of higher cognitive processes. This thesis investigates the relationship between logical and moral reasoning by applying a theory of cognitive dissonance. Two experiments were conducted that implemented two methods used to create cognitive dissonance among participants' moral beliefs. The results from Experiment One indicated that participants experienced cognitive dissonance after behaving in a manner that was inconsistent with their most confident moral beliefs. In contrast, as a result of a methodological change, participants in Experiment Two did not experience cognitive dissonance after behaving in a manner that was inconsistent with their most confident moral beliefs. Lastly, a qualitative analysis of the participants' moral judgments was used to provide an explanation for the participants' lack of cognitive dissonance. The qualitative analysis investigated the other possible factors (in addition to logical reasoning) that were apparent in a person's moral reasoning.

The Logic of Morality: Investigating the Relationship Between Logical and Moral Reasoning

Moral questions have perplexed humanity for centuries. One component of morality provides recommendations for how to live life according to the most correct or "just" means possible while still trying to adjudicate between self-interests and ethical obligations to others. While it is the work of philosophers to assert what constitutes the ideals of morality, psychologists take a different approach. Rather than studying morality as an abstract concept, psychology investigates how humans approach morality in their reasoning and behavior. Specifically, moral reasoning research investigates how individuals use their judgments of right and wrong to solve dilemmas that involve competing interests and ethical obligations. An individual's moral judgments compose the moral framework that psychologists describe as moral reasoning.

One of the most influential psychologists who investigated the reasons and justifications behind an individual's moral decisions was Lawrence Kohlberg. He devised a theory of moral development that suggested that as individuals develop cognitively, they show a corresponding development in their ability to solve complex moral dilemmas (1958, 1969). For Kohlberg, moral reasoning is seen as a developmental progression from inherently selfish motivations that determine one's moral actions to more complex considerations that focus on larger, universal principles of justice, equality, and respect. This theory is influenced by philosopher Immanuel Kant's metaphysical notion of morality that states that the most moral person would treat all humans as having intrinsic value while considering them to be an "end, not a means" (1785/1988). In terms of Kohlberg's psychological theory, this notion of an "end, not a means" exists in Kohlberg's highest stage of morality and is characterized by the individual's ability to

weigh the importance of every person involved in a moral dilemma equally, so that each person commands the same degree of respect for his or her human rights regardless of the nature of his or her actions. To reach this highest stage of moral development, Kohlberg believed that a sequence of cognitive changes must occur allowing individuals to move past their immediate circumstances.

Kohlberg created his developmental theory of morality after working with his mentor Jean Piaget; both researchers investigated morality as being tied to cognitive processes. To understand adequately Kohlberg's theory of moral development and its underlying assumptions, a small digression into discussing Piaget's work on the cognitive development of children is necessary. Piaget's primary theory (1952; Piaget & Inhelder, 1969) concerns the development of scientific, mathematical, and logical thought from infancy to adolescence. Described in this genetic epistemology, children are seen as active participants in constructing and acquiring their understanding and knowledge of the world with which they interact. Piaget's work focused on the acquisition of knowledge (epistemology) in the developing child, and his theories concerning this development grew into the predominant theory of child development. Piaget's cognitive-developmental stage theory suggests that a child's development follows an invariant sequence of acquiring new information while integrating that new information with already-existing knowledge and experience. Piaget considered knowledge in children to be holistic – being constituted in parts yet emerging into a total whole. Piaget posited that the stages of development must (a) reflect qualitative differences between stages in reasoning, (b) follow an invariant, sequential pattern of development so that higher stages cannot be reached without their corresponding lower stages, (c) form a "structured whole" (*structure d'ensemble*), which suggests that differences in the content within a stage can exist as long as the underlying

organization of the stage adheres to a single structural theme, and lastly (d) form hierarchical integrations, which suggests that higher stages do not replace lower stages of development, but that the lower stages are integrated into higher levels of cognitive thought processing (as cited in Lapsley, 1996). These underlying structures of Piaget's stage theory are the same guidelines that become embedded in Kohlberg's theory of moral development.

Piaget not only studied how intellectual knowledge was acquired, but his research also investigated the development of morality in children (1932/1965). He believed in two stages of morality in children (excluding the pre-moral stage): heteronomy (used to describe moral reasoning as being motivated by the punishments or rewards given by authority figures) and autonomy (literally "self-governing," but used to describe higher principled moral reasoning). However, Piaget's concepts of children's morality were largely abandoned after Kohlberg's more in-depth analysis into the development of morality. While using Piaget's methods for understanding the nature of the development of morality, Kohlberg found that Piaget's two stages of moral development were insufficient to describe the moral reasoning that he found in the later stages of an individual's development. Kohlberg found that rather than a two-stage dichotomy between heteronomy and autonomy, the lifespan of an individual reflected the development of morality that progressed through six moral stages. He suggested that these six stages of moral development could be combined into three sociomoral perspectives that suggest a relationship between the self and society's expectations of moral rules (Colby & Kohlberg, 1987). The first perspective, *preconventional morality*, represents a level of morality usually reserved for most children under the age of nine, but also includes some adolescents and adults. This perspective of morality (comprising Kohlberg's Stages 1 and 2) assumes morality to be the avoidance of punishment and the achievement of pleasure. The second perspective of sociomoral

development, *conventional morality*, is the level of morality found in most adolescents and adults. This perspective of morality (comprising Stages 3 and 4) reflects an individual who makes moral judgments based upon social approval, concerns of loyalty and care for others, or obeying societal norms and laws. An important consideration for conventional morality that will be discussed later is the charge that these two stages contain an inherent gender bias (Gilligan, 1982). The final perspective, *postconventional morality*, is reached only by a small minority of adults and usually only after late adolescence. A person using this framework of morality (comprising Stages 5 and 6) determines their morality through self-chosen principles of justice that are based on values of human rights and equality.

Similar to Piaget's stages, Kohlberg's six stages of moral development reflect a cognitive-developmental progression (Kohlberg, 1969; Colby & Kohlberg, 1987). In this respect, not only was Kohlberg's theory of moral development built using Piaget's stage framework, but also the development of morality is tied to the development of higher levels of cognition. Kohlberg suggested that higher levels of cognition, such as the use of logical reasoning, help individuals make moral decisions by enabling them to reason about the many factors inherent in a dilemma.

One of the primary methods used to elicit moral reasoning is to have a person respond to a series of moral dilemmas. In the Moral Judgment Interview (Colby & Kohlberg, 1987), individuals are asked to resolve a series of hypothetical moral dilemmas and to explain the reasoning behind their moral decisions. The moral dilemmas provide a stimulus that encourages the participant to make value judgments about the characters in the dilemma, judgments of right and wrong, and to balance the characters' often conflicting ethical interests. The Heinz dilemma is an example of the quintessential moral dilemma presented to participants:

> In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging 10 times what the drug cost to make. He paid $400 for the radium and charged $4,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money and tried every legal means, but he could only get together about $2,000, which was about half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said, "No, I discovered the drug and I'm going to make money from it." So Heinz, having tried every legal means, gets desperate and considers breaking into the druggist's store to steal the drug for his wife (Colby & Kohlberg, 1987, Vol. 2, p. 1).

Following the reading of this dilemma, individuals are asked whether or not Heinz should steal the drug and, more importantly, *why* they think Heinz should make that decision. Kohlberg's emphasis lay not in judging a person's decision to steal or not to steal as "right" or "wrong," as neither decision was more "moral" than another. Instead, he suggested that the person's stated motivations revealed a developmental progression, tied to their cognitive development, toward higher conceptions of morality. Kohlberg was thus able to distinguish responses that appeared similar on the surface but that actually reflected different levels of moral development.

Kohlberg (1971) suggested that a person's moral judgments (the responses to these moral dilemmas) create a complete moral framework that represents their stage of moral development. He suggested that the judgments used were "neither the expression of, nor the description of, emotional or volitional states," but rather moral judgments represented a "different kind of function with a definite cognitive structure" (p. 185). Moral judgment is thus defined by an individual's "use and interpretation of rules in conflict situations" and his or her "reasons for moral action" (p. 186). Colby and Kohlberg (1987) also suggested that moral judgments contain value judgments that incorporate social judgments as well as judgments of right and wrong.

These moral judgments do not develop alone; instead, moral development parallels cognitive development. Kohlberg (1971) suggested that a person's moral development requires

the corresponding development of logic in order to advance to higher levels of morality. He suggested that "logical stages must be prior to moral stages," and that a person "can be at a given logical stage and not at the parallel moral stage, but the reverse is not possible" (p. 187). This relationship between logic and moral reasoning presupposes that moral reasoning contains a logical component. As Kohlberg based his theory of moral development on Piaget's framework, morality is understood as being necessarily related to a person's logico-cognitive development.

Yet moral judgments that derive from logical reasoning and rational calculations would appear to be better suited to handle a specific style of morality, that is the morality of justice. Indeed, Kohlberg (1973) created his theory of moral development by basing the stages of moral development on a progression of justice, which he believed to encompass the best moral philosophy. Since justice-based moral dilemmas require individuals to adjudicate between the rights of the self and the rights of society, the resolution of the moral dilemma ultimately becomes the use of a logical argument. A justice-based theory of morality suggests that the most "just" way for humans to approach moral problems is through rational, logical, and objective considerations. This is best illustrated at the higher stages of moral development, where decisions are made as a result of good arguments that show a concern for impartiality, individual rights, and reciprocity for the greater good. In fact, Kohlberg described the nature of moral judgments as reflecting logical considerations and that they "tend to be universal, inclusive, consistent, and grounded on objective, impersonal, or ideal grounds" (1971, p. 215).

A psychological theory using justice as the sole theme of moral issues has been charged as failing to capture the complexity of moral reasoning. One of the consequences of studying moral reasoning through this justice-based system of morality is that the resulting theory neglects a more personal, relational, and care-based morality (Gilligan, 1982). Empirically speaking,

individuals do not appear to approach moral dilemmas only through the framework of justice-based reasoning, but also use a care-based reasoning system as well (Gilligan & Attanucci, 1988). In fact, Carol Gilligan's research (1982) on possible gender differences in morality led to the development of a parallel theory of morality that she described as the "ethic of care."

Gilligan's belief that Kohlberg's stage theory presented a one-sided view of morality began when Holstein (1976) suggested that males and females were being classified as different stages based upon their gender. Holstein's research found that males received Stage 4 classifications, which are characterized by showing concerns for maintaining social and legal order, and that females received Stage 3 classifications, which are characterized by showing compassion and care for other people. She also noticed that males and females skipped intermediary stages: some males were found to skip from Stage 2 to Stage 4, while some females were found to skip from Stage 3 to Stage 5 (Holstein, 1976). From these results, Holstein proposed that Kohlberg's theory inadequately represented female considerations of morality.

Indeed, Holstein's criticisms are not without merit. While Kohlberg's theory was based on a 20-year longitudinal study, it was formulated using male participants exclusively (Colby, Kohlberg, Gibbs, & Lieberman, 1983). After the publication of Holstein's (1976) findings, Gilligan (1982) began her own research that investigated how females have been traditionally ignored in developmental theory, and most notably, in Kohlberg's theory of moral development. One of her critical claims against Kohlberg's theory was that it represented a male-biased view of moral development that did not consider feminine conceptions of morality.

Gilligan's research (1982) presented a new method and framework in which to investigate moral reasoning. In contrast to Kohlberg, she tested only female participants while asking them to reason about real-life rather than hypothetical moral dilemmas (Gilligan &

Belenky, 1980). In fact, Gilligan's work with real-life moral dilemmas resonated with many researchers' own contentions (e.g., Krebs, Denton, Vermeulen, Carpendale, & Bush, 1991; Carpendale & Krebs, 1995; Wark & Krebs, 1996; Haviv & Leman, 2002). It has been argued that, although the Heinz dilemma presents a truly difficult moral dilemma, the scenario is extraordinarily unlikely to occur in any individual's lifetime. Colby and Kohlberg (1987) argued that by using hypothetical dilemmas of extraordinary circumstances (Heinz must choose between saving his wife's life or spending the rest of his life in jail), the individual's moral reasoning is assessed at its highest level. However, other researchers have argued that these dilemmas are so philosophical in nature that they neglect everyday moral reasoning and ignore a more prosocial, care-based moral reasoning that uses a different approach for solving moral dilemmas (Gilligan, 1982; Krebs et al., 1991).

Indeed, Gilligan's research (1982; Gilligan & Belenky, 1980) suggests that as females discuss real-life moral dilemmas such as dealing with an abortion, a "different voice" of female morality emerges. The feminine ethic of care is alleged to be more concerned about the maintenance of relationships, while the masculine ethic of justice is suggested to be more concerned with independence and the maintenance of the autonomous self. For the most part, these gender characterizations have not been supported by empirical testing (e.g., Walker, 1984; Jaffee & Hyde, 2000), but appear to be the result of males preferring justice-based morality and females preferring care-based morality (Gilligan & Attanucci, 1988; Wark & Krebs, 1996).

Although Gilligan's investigation into the gender differences in morality has not been substantiated by empirical research, she did, however, contribute a new approach to understanding moral reasoning. This approach to morality, using the ethic of care, suggests that not all moral decisions are based on impartial and objective standards of right and wrong. While

certain moral dilemmas might be approached through objective and impartial reasoning (the justice orientation), some moral decisions can incorporate subjective and caring concerns for others with impersonal judgments of right and wrong.

In an attempt to understand more clearly the framework of Kohlberg's stage theory, this thesis investigates the relationship between logical reasoning and moral reasoning. Since Kohlberg's stage theory is built upon a progression of justice, does it naturally follow that participants' judgments will reflect logical considerations of the moral dilemma? What other factors are prevalent in a person's moral judgments? Can considerations of care coexist with logical considerations of morality?

In this thesis three studies are presented that attempt to understand the relationship of logical reasoning and moral reasoning. In order to test the validity of the relationship between logical and moral reasoning, the first two experiments investigated whether cognitive dissonance, a phenomenon that occurs in logical reasoning, could be applied to a person's moral reasoning. Experiments One and Two investigate whether (a) individuals can experience cognitive dissonance among their moral judgments in the same way that it can be experienced among their logical cognitions and whether (b) different methodologies can both induce cognitive dissonance. Lastly, a qualitative analysis of participants' moral judgments from Experiment Two was conducted to provide supplementary information for Experiment Two's results.

Cognitive Dissonance and Moral Reasoning

Experiments One and Two investigate the relationship between logical reasoning and moral reasoning. If moral reasoning is tied to the development of logical reasoning as Kohlberg's theory suggests, then factors that influence logical judgments should influence moral judgments

as well. To test this assumption, the present study questioned whether a well-documented phenomenon in social psychology known as cognitive dissonance would have an effect on a person's moral reasoning (Festinger, 1957). A person's reasoning comprises both consonant cognitions, thoughts or beliefs that are consistent with one another, and dissonant cognitions, thoughts that are inconsistent with one another. It is the presence of dissonant cognitions that are expected to create the negative feeling of cognitive dissonance. An example of two consonant cognitions would be, "I am a healthy eater," and "I ate a well-balanced breakfast this morning." In contrast, two dissonant cognitions would be, "I am a healthy eater," and "I ate a high-fat, high-cholesterol meal this morning." The presence of dissonant cognitions creates a feeling of discomfort. If individuals cannot explain or justify the inconsistency, they become motivated to change their cognitions to alleviate the discord. As a result, individuals may add new cognitions, change current cognitions, or reduce the importance of pre-existing cognitions in order to reduce the tension of cognitive dissonance. In the healthy-eating example, the person may add or change cognitions to maintain a logical consistency: "Once in a while, I may eat an unhealthy meal, but the majority of the time I am a healthy eater." Cognitive dissonance has been a well-investigated phenomenon with remarkably consistent results (e.g., Gawronski & Strack, 2004; Desantis, 2003). Hypothetically, the same premises supporting the theory of cognitive dissonance suggest that the presence of inconsistent moral positions should create a feeling of "moral dissonance." A person could potentially experience "moral dissonance" if they claim to support the principle of the sanctity of life, but hold both strong anti-abortion and strong pro-death penalty positions.

One procedure used in experiments to create cognitive dissonance is known as the induced-compliance paradigm. Participants in a typical induced-compliance study are asked to write a counterattitudinal essay that argues either for or against a strongly held belief. In order to

create dissonance, the participants must willingly write the essay, receive no rewards for their participation, and must be made to believe that writing the essay will have aversive consequences (i.e., it will be used to persuade others to believe the position for which they are arguing; for criteria see Cooper & Fazio, 1984). The purpose of the induced-compliance paradigm is to force individuals to behave in a manner contrary to their beliefs. As a result, dissonance is created between two cognitions: "I am against *x*" and "I just wrote an essay advocating *x*." Because the cognition created from the behavior of writing the essay cannot be changed, the individual can only reduce his or her dissonance by modifying the first cognition. In this way, the induced-compliance paradigm elicits a change in a person's seemingly concrete cognitions (Cooper & Fazio, 1984).

How then can cognitive dissonance be used to study moral reasoning? To this end, this experiment asks the following question: to what extent does moral reasoning depend on logical reasoning? If there is a component of moral reasoning that is dependent on logic, as is predicted by Kohlberg's theory, then factors such as cognitive dissonance that influence logical reasoning should also influence moral reasoning as well.

Experiment One

To investigate the extent to which moral reasoning is dependent upon logical reasoning, this experiment employed two manipulations that followed two separate research questions. The first manipulation used the induced-compliance paradigm and had participants write an essay that was contrary to a strongly held moral belief. If cognitive dissonance affects a person's moral judgments in the same way that it affects a person's logical reasoning, then participants should have decreased their confidence in their moral positions after writing an essay supporting an

opposing position. If participants changed their level of confidence after writing a counterattitudinal essay, then this would provide sufficient evidence to suggest that cognitive dissonance occurred as a result of behaving in a manner inconsistent with one's moral beliefs. As a result, Kohlberg's assumption that moral reasoning is related to logical reasoning would be supported.

The second question of this experiment addressed whether the logical component of moral reasoning is related specifically to moral reasoning or to a person's behaviors associated with their moral reasoning. The second manipulation examined whether the simple acknowledgment of already-existing inconsistencies among one's moral positions could create cognitive dissonance. This manipulation removed the behavioral component of a person's moral beliefs and focused only on a person's reasoning about moral issues. If the logical component of morality is related only to an individual's behaviors regarding moral issues, then individuals should not experience cognitive dissonance when they are told that some of their already-existing moral beliefs are inconsistent. However, if the logical component of moral reasoning is related to a person's reasoning about moral issues, then individuals should experience cognitive dissonance when they are made aware that some of their already-existing moral beliefs are inconsistent.

Method

Participants

This study used a convenience sampling of the Sweet Briar College community that comprised 21 total participants (10 female and 11 male), ranging in ages 21 to 57 years old. There were no special selection criteria regarding recruitment of participants. Three participants were dropped from the sample because they either did not finish the study or did not complete

important sections of the procedure. The remaining 18 participants (9 females and 9 males) also provided demographic information such as political affiliation, educational level, and religious affiliation. These demographic variables were collected because they represented factors that "folk psychology" has suggested to have an influence on a person's morality.

Questionnaires

Participants completed several morality questionnaires traditionally used in moral reasoning research. These questionnaires were used to provide additional insight into the many nuances of a person's moral reasoning. The first questionnaire given was the Defining Issues Test (DIT; Rest, Cooper, Coder, Masanz, & Anderson, 1974; Rest, 1986), which is widely viewed as being the standard objective measure of Kohlberg's theory of moral development. On the DIT, participants receive percentages for the frequency with which they use "principled judgments," which represents moral judgments made at Stage 5 and higher. This percentage is called the participant's "*p*-score" (but to avoid confusion with probability estimates, the present research will refer to this score as a "*K*-score"). This *K*-score is then divided into thirds: three levels of Low, Middle, and High percentages of principled judgments. Participants whose percentage of principled judgments were 60% or higher were placed in the High group, participants whose percentage of principled judgments were between 42% – 59% were placed in the Middle group, and participants whose percentage of principled judgments were below 41% were placed in the Low group.

Two additional questionnaires given to participants to highlight the different aspects of moral reasoning were the Ethical Position Questionnaire (EPQ, Forsyth, 1980), which provided a measurement of a participant's predisposition to prefer idealistic or relativistic morality, and the State-Trait Morality questionnaire (Wolfrom & Loboschefski, 2004), which grouped participants

based on whether they reasoned according to internal values or external, situational variables. For the EPQ, participants were classified into four categories based on two scales of idealism and relativism. Idealism was characterized by the participant's concern for upholding abstract moral ideals regardless of the situation, whereas relativism was characterized by the participant's concern that each situation be treated individually and the avoidance of high moral ideals. Participants with high scores of relativism and high scores of idealism were categorized as Situationists. A Situationist was described by Forsyth (1980) as an individual who "rejects moral rules and advocates individualistic analysis of each act in each situation" (p. 176). Participants with high scores of relativism, but low scores of idealism were categorized as Subjectivists. A Subjectivist was described as an individual whose "appraisals are based on personal values and perspective rather than universal moral principles" (p. 176). Participants with low scores of relativism, but high scores of idealism were categorized as Absolutists. An Absolutist was described as an individual who "assumes that the best possible outcome can always be achieved by following universal moral rules" (p. 176). Lastly, participants with low scores of relativism and low scores of idealism were categorized as Exceptionists. An Exceptionist was described as an individual who used "moral absolutes to guide judgments," but who is "pragmatically open to exceptions to these standards" (p. 176). This test was used to gain a broader perspective of a participant's moral judgments when influenced by cognitive dissonance.

The last questionnaire, the State-Trait Morality Questionnaire (S-T, Wolfrom & Loboschefski, 2004), was a modified version of the State-Trait Anxiety Inventory (Spielberger, 1983). It was used to assess whether participants solved moral dilemmas according to their own internalized values (Trait), according to situational, external factors inherent to the type of

dilemma (State), or according to a combination of internalized values and situational factors (State-Trait).

Procedure

Participants were given two take-home questionnaires. The first questionnaire asked them to state and explain their moral positions and to rate their level of confidence on their positions on the following six moral dilemmas: abortion rights, the death penalty, homosexual rights, gun control, and two contrasting issues regarding the freedom of speech: freedom from offensive symbols and freedom to display religious symbols. Participants were asked to be explicit in their explanations regarding why they believed in their stated position. Following their written elaboration on each dilemma, participants were asked to rate their confidence in their positions on a 7-point Likert scale (1 being extremely unsure and 7 being extremely confident) and were asked whether or not they thought the issue was a "moral" issue. Each moral dilemma was presented in this manner and after participants answered these questions, the first part of this experiment was considered complete.

The second section of this experiment began after the participants' confidence levels for each of the six moral dilemmas had been assessed. All participants were assigned an essay topic for the induced-compliance paradigm based on their most confident moral stance and were led to believe that their essay would be used to persuade others in favor of the issue for which they were arguing. Following the induced-compliance paradigm, participants were asked to rate their confidence again regarding their true position. For example, an individual who indicated that she was extremely confident in her position in favor of abortion was asked to write an essay that was strongly against abortion. Following the writing of this essay, she was asked to evaluate her confidence in her real position (i.e., in favor of abortion).

The next manipulation attempted to induce cognitive dissonance through a person's already-existing moral beliefs. To do this, the researcher established relationships between the six moral dilemmas. The abortion and death penalty issues were considered to be related according to a person's beliefs regarding the principle of the sanctity of life. Similarly, the homosexual rights and gun control issues were considered to be related according to a person's beliefs regarding whether the government should intervene and regulate a citizens' rights. In the case of homosexual rights, the relation was whether the participant agreed that the government should intervene and give all persons equal protection under the law regardless of their sexual orientation. In the case of gun control, the relation was whether the participant agreed that the government should intervene and regulate a person's right to bear arms. These two issues were considered to be related because both involve the government increasing their involvement to provide a change. The last two issues on the freedom of speech were considered to be related according to whether a person believed that the freedom of speech should allow people to (a) display either possibly offensive materials or (b) display overtly religious materials in public places. By categorizing these six moral issues into three groups of two related issues, this study attempted to create experimentally a feeling of cognitive dissonance by suggesting to individuals that their moral beliefs on one dilemma were inconsistent with their moral beliefs on another dilemma.

Participants were then grouped according to whether their positions were inconsistent or consistent on the three underlying moral/societal principles. Participants were considered inconsistent if one of their positions contradicted one another on the basis of the underlying moral/societal principle. For example, a person with positions that were in favor of abortion but in opposition to the death penalty was considered to hold positions that were inconsistent with

one another. These positions were inconsistent because, according to the underlying theme of the sanctity of life, the participant did not support this theme when regarding abortions but did support this theme when regarding the death penalty. Another example of an inconsistency was between the issues of homosexual rights and gun control. A person with positions that were in favor of granting homosexuals rights, but in opposition to imposing stricter gun laws, was considered to hold positions that were inconsistent with one another. These positions were inconsistent because, according to the underlying theme concerning the extent to which the government should or should not intervene on matters concerning individual rights, the participant agreed that the government should intervene and provide rights to homosexuals, but did not agree that the government should intervene and impose stricter rules for regulating guns. Lastly, participants' positions on the two issues about the freedom of expression were also categorized as consistent or inconsistent according to whether their positions supported or did support the freedom of expression in both circumstances. It was possible for any one participant to be considered inconsistent on all, some, or none of the three of the underlying themes connecting the six issues. Those participants with no inconsistencies did not receive the second manipulation of this study.

Participants with inconsistent beliefs were made aware of their inconsistencies by showing them the underlying moral/societal theme and their position according to that theme. Following this attempt at creating dissonance, participants were asked to indicate a yes or no response to the following questions: "Were you aware that there was an inconsistency in your beliefs?" "Are you bothered by the fact that there is an inconsistency?" and "Do you believe that these positions are in fact inconsistent?" If the participants did not agree that their position was inconsistent, they were asked to explain why they believed that their positions were not

inconsistent or why they believed that the underlying moral/societal theme was incorrect. Following these questions, the participants were asked to rate their confidence on each individual issue again. So, if a person was considered to be inconsistent on the abortion and death penalty dilemmas, they were asked to rate their confidence on the abortion issue and their confidence on the death penalty issue on two separate 7-point Likert scales that followed in successive order. After rating their confidence the last time, participants were asked to rank four principles (emotion, logic, morality, and society) from most to least amount of influence in arriving at their decision.

Results

To investigate the extent to which morality is dependent on logical reasoning, the data were analyzed in two parts. The first part of the results concerned what will be called the essay difference score. This score represented the change in confidence from the participants' pre-essay to their post-essay confidence levels. As a result, a negative score indicated that participants decreased their confidence in their moral position after one of the two manipulations were given, whereas a positive score indicated that participants increased their confidence after the manipulations were given. Cognitive dissonance was considered to have occurred when participants' essay difference score displayed a negative number, which represented a decrease in their confidence levels. No distinctions were made regarding the different issues (abortion, death penalty, etc.) that participants were asked to write an essay on, but rather all issues were considered equal in their ability to create cognitive dissonance through the induced-compliance paradigm.

Part One: Dissonance from the Counterattitudinal Essay

After writing an essay contrary to their most confident moral stance, participants decreased their confidence in their moral position by an average of -.917 points on a 7-point Likert scale, t (17) = -2.632, $p < .05$. This indicated that regardless of any classifying variables, participants lowered their confidence after writing a counterattitudinal essay.

Decreases in confidence (indicative of cognitive dissonance) were also examined using the three morality questionnaires (DIT, EPQ, and S-T). Using this same difference score, several one-way ANOVAs using the classification systems of the three questionnaires as the independent variable were conducted. First, a one-way ANOVA using the three levels of the DIT's *K*-Score (Low, Middle, and High percentages of principled judgments) did not yield a significant main effect for the three levels of the *K*-Score, F (2, 15) = .989, $p > .05$. Participants with a Low *K*-Score (M = -1.700, SD = 2.439) did not differ significantly from participants with a Middle *K*-Score (M = -.667, SD = .866), nor from participants with a High *K*-Score (M = -.500, SD = 1.000).

In the same way, the four categories of the EPQ did not yield any statistically significant main effects, F (3, 14) = .366, $p > .05$. These four groups did not statistically differ from one another. The Situationists showed the greatest decrease in their confidence (M = -1.417, SD = 2.458), followed by the Exceptionists (M = -.800, SD = .447), Subjectivists (M = -.750, SD = .957), and Absolutists (M = -.333, SD = .577).

A one-way ANOVA using only two of the three categories of State-Trait Morality did not yield a statistically significant main effect, F (1, 15) = 1.404, $p > .05$. This analysis only compared those participants who scored as State and State-Trait morality, since the Trait category had only a minimal amount of Trait participants. Participants who were a State Morality

type (*M* = -1.583, *SD* = 2.289) did not decrease their confidence significantly more than those participants who were a State-Trait Morality type (*M* = -.727, *SD* = .647).

Next, additional one-way ANOVAs were conducted using specific demographic variables. A one-way ANOVA using two categories of Religious Affiliation (Religious or Non-Religious) did not yield a statistically significant main effect, $F(1, 16) = 2.055, p > .05$. Religious participants (*M* = -1.350, *SD* = 1.733) did not differ significantly from Non-Religious participants (*M* = -.375, *SD* = .916). Next, a one-way ANOVA using a person's gender did not yield a statistically significant main effect, $F(1, 16) = .500, p > .05$. Male participants (*M* = -1.167, *SD* = 2.000) did not decrease their confidence significantly more than female participants (*M* = -.667, *SD* = .707). Next, a one-way ANOVA using three categories of different age groups (Young = ages 22-30, Middle = ages 31-40, and Older = ages 41-57) did not yield a statistically significant main effect, $F(2, 15) = .757, p > .05$. The group of Young participants (*M* = -1.429, *SD* = 2.149) did not decrease their confidence significantly more than either the group of Middle participants (*M* = -.417, *SD* = 1.021), or the group of Older participants (*M* = -.800, *SD* = .447). Lastly, a one-way ANOVA using four categories of political affiliation (Liberal, Conservative, Moderate, and Independent) did not yield a statistically significant main effect, $F(3, 14) = .969, p > .05$. Participants who said they lacked a political affiliation (i.e., Independents) showed the greatest amount of decrease in their confidence (*M* = -2.000, *SD* = 2.708), followed by Conservatives (*M* = -.750, *SD* = .758), Liberals (*M* = -.600, *SD* = .894), and Moderates (*M* = -.333, *SD* = 1.155).

In sum, cognitive dissonance was experienced uniformly across all the different classifying variables. Participants lowered their confidence in their most confident moral belief after writing a counterattitudinal essay.

Part Two: Awareness of Already Inconsistent Positions

The second part of these results investigated what will be called the already-existing dissonance difference scores. This score represents the change in confidence from the participants' pre-essay to post-essay confidence levels after being told that their positions were inconsistent. To calculate this number, all the participants' pre-essay confidence scores across all issues were summed, then all the participant's post-essay confidence scores across all issues were summed, and then these summed scores were subtracted from one another to yield the already-existing dissonance difference scores. No distinctions were made regarding the type of issue (abortion, death penalty, etc.), but rather all issues were considered equal in their ability to create cognitive dissonance. Six participants from the 18 total participants were not considered inconsistent across their positions and therefore did not receive this second manipulation.

After being told that either one, two, or three sets of their six positions were inconsistent, participants did not significantly decrease their confidence in their moral positions, but in fact showed a slight increase in confidence on the 7-point Likert scale, $t\ (11) = .445$, $p > .05$. There was not a uniform decrease in the participants' change in confidence scores after being made aware that their positions were inconsistent.

Using this same difference score, several one-way ANOVAs were conducted using the same three questionnaires as used in Part One (the DIT, the EPQ, and the S-T). A one-way ANOVA using the three levels of the DIT's *K*-Score (Low, Middle, and High percentages of principled judgment) yielded a marginally significant main effect, $F\ (2, 9) = 3.874$, $p = .0611$. Participants with a Low *K*-Score ($M = .354$, $SD = .322$) actually increased their confidence after being told that their positions were inconsistent, while the High *K*-Score participants ($M = -.389$, $SD = .536$) decreased their confidence after being told that their positions were inconsistent. The

Middle *K*-Score participants increased their confidence by a trivial amount ($M = .083$, $SD = .236$).

There were also no statistically significant main effects for the EPQ or the S-T. A one-way ANOVA using the EPQ did not yield any significant differences between the four groups, $F\ (3, 8) = .682$, $p > .05$. Also, a one-way ANOVA using the S-T did not yield a statistically significant difference between the two groups, $F\ (1, 9) = .225$, $p > .05$. With both questionnaires, no individual classifying groups differed significantly.

Finally, one-way ANOVAs using the demographic classifications did not yield any significant main effects. A one-way ANOVA using two categories of Religious Affiliation (Religious or Non-Religious) did not yield a statistically significant main effect, $F\ (1, 10) = .258$, $p > .05$. Next, a one-way ANOVA using a person's gender did not yield a statistically significant main effect, $F\ (1, 10) = .000$, $p > .05$. This anomaly indicated that the means for both male and female participants were not significantly different ($M = .056$, $SD = .602$, .222) for the male and female participants, respectively. Next, a one-way ANOVA using the three categories of the different age groups (Young, Middle, Older) did not yield a statistically significant main effect, $F\ (2, 9) = .621$, $\mathrm{p} > .05$. Lastly, a one-way ANOVA using four categories of participants' political affiliations (Liberal, Conservative, Moderate, and Independent) did not yield a statistically significant main effect, $F\ (3, 8) = 2.389$, $p > .05$.

In sum, only the participants' *K*-Scores yielded a marginally significant finding, and no other classifying variables yielded any statistically significant results.

Discussion

The results from this experiment present unique findings regarding moral reasoning's relationship to logical reasoning. This experiment hinged on whether cognitive dissonance could

be created among a person's moral judgments. If this is possible, can the corresponding change in confidence be seen? It does appear that cognitive dissonance was created among participants' moral judgments because participants decreased their confidence in their moral positions after they behaved in a manner that was inconsistent with those beliefs.

This finding is consistent with the majority of cognitive dissonance research in which the existence of two inconsistent cognitions creates a feeling of mental tension or discomfort. In order to reduce the cognitive dissonance created, one of the cognitions must be changed in some way. Since in this circumstance, the behavioral action of writing the essay cannot be changed (the essay writing is in the past), the person's confidence in the initial moral position decreased.

This suggests that the behavioral component of a person's morality follows similar rules associated with logical reasoning. Individuals are motivated to maintain a logical consistency among their cognitions, especially after acting in a manner inconsistent to one of their most confident moral beliefs.

The second question of this study addressed whether an individual would change their confidence in their moral positions after being made aware of already-existing inconsistent positions. The results from this section suggest that participants did not experience cognitive dissonance after being told that their already-existing positions were inconsistent. Telling participants that their beliefs were inconsistent did not create a feeling of cognitive dissonance. In comparison with the significant finding of the participants' overall decrease in confidence, it seems that in order for cognitive dissonance to be created, a behavioral action must be implemented. Participants who gave a counterattitudinal essay lowered their confidence in their moral beliefs, while simply making participants aware of their already inconsistent moral beliefs was not strong enough to create cognitive dissonance.

Although only marginally significant, the results of the participants' three levels of principled judgments (from the DIT) are consistent with the suppositions of Kohlberg's theory. Participants with lower percentages of principled judgments (Low *K*-Score) actually increased their level of confidence after being told that their positions were inconsistent with one another, while participants with higher percentages of principled judgments (High *K*-Score) decreased their level of confidence. Since participants who reason with less principled judgments are considered to be not as developmentally advanced in morality, perhaps these participants were concerned with their appearance in front of the experimenter and so did not want to "look bad" by lowering their confidence. Lower levels of principled judgment (Kohlberg stages below 5) have been described by Kohlberg as "living up to what is expected by people close to you or what people generally expect of people in your role" (1987, p. 18). Perhaps in being overly concerned with social norms, these participants did not want to look inferior by lowering their confidence and instead overcompensated by increasing their confidence.

Some possible explanations for this finding were found in the descriptive data that was collected from the participants. After participants were told that their positions were inconsistent according to the underlying moral/societal principle, participants were asked whether they were aware of the inconsistency in their beliefs and whether they were bothered by the inconsistency in their beliefs. While 78% of the participants indicated that they were aware that their beliefs were inconsistent, there was no indication that this inconsistency created the mentally disturbing feelings of cognitive dissonance. In fact, the majority of participants (90% of them) indicated that they were not bothered by the inconsistency. This provides additional evidence that indicates that this manipulation was not strong enough to create cognitive dissonance. Since the participants did not feel any discomfort by the dissonant cognitions, they were not motivated to

change any of their beliefs, which is substantiated by the lack of a statistically significant decrease in their confidence levels.

Most participants did not find it necessary to group the six dilemmas into three pairs of related dilemmas. In the abortion and death penalty dilemmas, many participants did not agree that the sanctity of life was the underlying principle that related the two dilemmas. These participants reframed abortion as being centered on women's rights rather than the sanctity of life, and they were against the death penalty because they believed it was less economical to have prisoners pass through the legal process to avoid the death sentence, indicating that they were not concerned about the sanctity of life as the reasoning behind their moral decision. It may be the case that since participants did not believe that the two issues were related to one another, they could not experience any dissonance as a result of their two inconsistent positions. In order for cognitive dissonance to occur, there must be some investment in believing that the two cognitions are inconsistent. In this case, participants may have acknowledged that there was an inconsistency because the experimenter indicated that such an inconsistency according to this one principle was possible, but the participants themselves did not feel cognitive dissonance because in their mind the two issues are not related to one another.

These results can be interpreted at face value as well. With respect to the relationship between logical reasoning and moral reasoning, this provides some interesting results. If cognitive dissonance is seen only when a behavior is associated with a moral belief, then perhaps moral reasoning is logical only when it is forced to become associated with a behavior. In terms of Kohlberg's theory, this would indicate that moral reasoning is not entirely dependent on logical reasoning. However, moral reasoning accompanied by a behavior begins to follow the principles associated with logical reasoning. If this is the case, then the methodologies used in

cognitive dissonance research become extremely important.

It may be the case that moral reasoning is not solely based on logical reasoning. It could be that when it comes to making decisions that are moral in nature, individuals may choose from a variety of influences other than just logic. When participants were asked which factors (emotion, logic, morality, and society) influenced them the most in making their moral decisions, a majority stated logic as their primary reason (42%) or their secondary reason (36%). Clearly participants were indicating that logic was not the only factor that influenced their moral reasoning, and they may change their considerations depending on circumstances of the dilemma. If moral reasoning is not based solely on logical reasoning, then that would explain why individuals were not bothered by inconsistent positions. The label of "moral" given to certain issues may allow for individuals to be illogical in their reasoning without any of the discomfort of cognitive dissonance occurring. The following participant's response to the abortion dilemma illustrates these multiple factors:

> *You have to choose to be moral. It is often a process devoid of emotion and often very illogical. From an emotional point-of-view, I do not care if a woman chooses to get an abortion or not, and from a logical/societal point-of-view, it is a good vehicle for 'natural selection,' and from a purely mechanical point-of-view, the right to an abortion probably 'helps' society. But it IS a moral issue and society SHOULD be about more than the mechanics of living together.*

Experiment Two

This second experiment was conducted to understand further the effect a behavior can have on logical and moral reasoning. In addition, given the differentiated ability of methodology to elicit cognitive dissonance (Cooper & Fazio, 1984), this experiment was conducted to address the several procedural shortcomings from Experiment One.

In Experiment One, participants' responses to moral dilemmas were in the form of written interviews. While the results from Experiment One suggest that this written method elicited cognitive dissonance, Colby and Kohlberg (1987) describe the written interview as being less than desirable for understanding moral judgments. Participants may be less likely to explain their reasoning behind their moral judgments when they are not being specifically asked to explain themselves in greater detail. As a result, the responses from participants in Experiment One could not be used in a qualitative analysis of the participants' actual moral judgments (a method adopted by Colby & Kohlberg, 1987), since these responses may not reflect the participant's overall moral reasoning. In contrast, Experiment Two utilized the preferred oral interview method to question participants about moral dilemmas. Participants were asked to give an oral counterattitudinal speech to provide continuity between the different methods of responding (oral versus written).

One specific shortcoming from Experiment One was the use of multiple underlying moral/societal principles. As was described earlier, participants were asked to respond to six moral dilemmas that were paired according to three underlying moral/societal principles. However, the majority of participants did not consider homosexual rights, gun control, and the two freedom of speech dilemmas to be particularly moral in nature. Participants raised many meritorious concerns as to the validity of the relationship between the four dilemmas and the corresponding moral/societal principles associated with them. Since these four dilemmas were the source of much confusion, Experiment Two did not make use of them. Experiment Two minimized confusion by retaining the abortion and death penalty moral dilemmas, which were associated with the one underlying moral/societal principle of the sanctity of life, and adding two moral dilemmas (stem cell research and euthanasia) that were related to the same principle. In

short, this meant that four moral dilemmas, rather than two, related to the underlying moral/societal principle. By expanding the number of dilemmas that were related to this one principle, cognitive dissonance should become more likely because participants are given more opportunity to have positions that are inconsistent with the underlying moral/societal principle.

This experiment addressed the same research question investigated in Experiment One. Do participants lower their confidence in their moral positions after behaving in a manner that is inconsistent with their most confident belief? Given that Experiment One created cognitive dissonance using a written interview, could this different method likewise invoke cognitive dissonance? If there is a close relationship between logical and moral reasoning, as Kohlberg's theory suggests, then these methodological changes should provide stronger evidence to validate this relationship.

Method

Participants

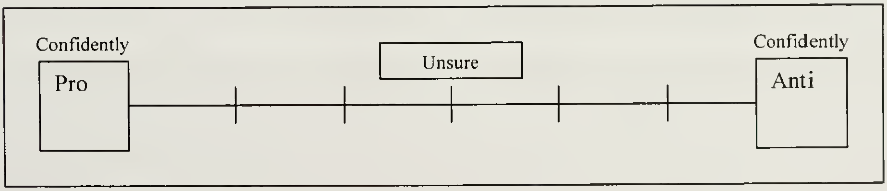
This experiment used a convenience sampling of 28 Sweet Briar College women between the ages of 18–23 years old. This sample population differed from the population used in Experiment One in a few ways. The use of only female college students makes this sample more constrained by gender and age than the previous experiment. The participants represented all four class ranks (first-, second-, third-, and fourth-year students) and were recruited from introductory and upper-level psychology courses. No special selection criteria were used to recruit participants. Participants were also asked to provide the same demographic information as in Experiment One. However, not all participants completed the study and some errors made during the interviews resulted in some participants missing their post-speech confidence score rating. As a result, only 17 participants were used in the following data analyses.

Procedure

Two separate interviews were conducted and the interviews were separated by one week. After signing the informed consent, participants were given the Defining Issues Test (DIT; Rest et al. 1974), which was used to measure each participants' moral maturity. The same procedures described in Experiment One were used to calculate each participant's moral maturity score. The two additional questionnaires administered in Experiment One (EPQ, 1980; S-T, 2004) were not used on the basis that their measures did not provide meaningful results in Experiment One.

The first interview took one hour and presented the six moral dilemmas followed by a series of probing questions. Participants were then asked whether they were in support of or against the issue raised in the moral dilemma and what their confidence was in this stated position. Participants were read the moral issue and were asked to provide their own judgments concerning the action of the character in the dilemma. Four of the six moral dilemmas presented in this experiment were based on the debates concerning stem cell research, abortion rights, the death penalty, and euthanasia. Two additional dilemmas were used as fillers to diminish the overt presence of these four similarly-related dilemmas. One of the filler dilemmas concerned a callous passerby who decides not to help a drowning boy and the second filler dilemma presented a town robbery where two thieves' criminal acts were compared. The town robbery and the euthanasia dilemma were taken from Colby and Kohlberg's (1987) standard moral judgment dilemmas.

After the participants were presented with the six dilemmas, they were asked to state their positions and to rate their confidence in these positions for each of the six moral dilemmas. The following line graph was used for participants to rate their confidence:



This scale was presented to participants without numerical values indicated. However, for statistical analyses, the lines were labeled on a 7-point Likert scale. A score of -3 was given for a "Pro" position, a score of 0 for an "Unsure" position, and a score of +3 for a "Anti" position. All marks between whole numbers were treated as half a point. Since the scale represented two directions of change depending on which axis the participant agreed with (pro or anti), the data from these analyses became more complex and will be explained further in the Results section.

After giving this confidence score, the first interview was complete. Before participants came back a week later, they were classified into two groups based upon their stated moral positions. Participants were classified as either consistently (Group Consistent) or inconsistently (Group Inconsistent) upholding the underlying moral/societal principle of the sanctity of life that related the four moral dilemmas. Two sets of positions were considered consistent according to this principle. One set of consistent positions supported the sanctity of life (that life is sacred at all costs): anti-stem cell research, anti-abortion rights, anti-death penalty, and anti-euthanasia. The second set of positions that were consistent did not support the sanctity of life (life is not sacred at all costs): pro-stem cell research, pro-abortion rights, pro-death penalty, and pro-euthanasia. Positions that were inconsistent according to the underlying moral principle were any combination of anti and pro positions. A subset of the consistent and inconsistent groups was designated as controls. These participants rated their confidence during the pre- and post-interviews, but they were not asked to give a counterattitudinal speech.

Both consistent and inconsistent participants (excluding the controls) were asked to give a counterattitudinal speech, but only the inconsistent participants engaged in a brief interview prior to their speech. In this pre-speech interview, the inconsistent participants were shown a diagram that illustrated how their positions on the four issues were inconsistent according to the

underlying moral principle. This was the experimental manipulation. They were asked to reflect upon their feelings regarding this inconsistency and to indicate whether or not they were bothered by the inconsistency. This manipulation was implemented to increase the likelihood of experiencing cognitive dissonance for the participants classified as having inconsistent positions.

The topic of the counterattitudinal speech (abortion, the death penalty, or euthanasia) was specifically chosen so that each participant would be advocating a moral position that was contrary to their most confident moral position. However, participants were told that their speech topics were chosen at random. Participants were told that their speeches were going to be used to persuade other individuals of the positions they were advocating. Participants performed a one- to five-minute speech in front of a video camera that they were made to believe was recording their speech. If participants did not want to give a speech, they were given the option of writing an essay that would be used to persuade individuals of the advocated position.

All participants then engaged in a 10-minute filler task that involved rearranging the letters of Sweet Briar College to create various phrases. Participants were then asked to indicate the strength of their confidence in the four stated positions and to rate their confidence according to the same scale that was used in the first interview. Participants were then debriefed as to the nature of the experiment, as well as to the deception used when they were asked to give a counterattitudinal speech.

Results

Experiment Two's data were analyzed in two ways due to distinctions in the dependent variables. The first section of the analyses used a *difference score* that represented the direction of the participant's change in confidence for the dilemma in which she held her most confident moral position after she behaved in a manner that was inconsistent with that position. For this

section, positive values indicated an increase in the participant's level of confidence and negative values indicated a decrease in the participant's level of confidence. This difference score was calculated by subtracting a participant's post-speech from their pre-speech confidence scores on the dilemma that corresponded with her speech topic. Preliminary analyses indicated that the specific topic of the speech did not affect the results, and so data were combined across moral dilemmas to provide each participant with only one difference score.

The second section of analyses used a *change score* that represented a participant's change in confidence on *each* of the four issues after behaving in a manner that was inconsistent with her most confident moral position. These change scores were different than the previous difference scores because these change scores did not indicate the direction of the participant's change in confidence. This was calculated by using the absolute values of the participants' difference scores to determine the amount of change that occurred irrespective of the direction of change. Therefore, all change scores for this section were greater than or equal to zero. Since there were four moral issues that received pre- and post-speech confidence scores, this section, therefore, has four dependent variables.

Part One – The Difference Scores

The first set of analyses was used to determine whether giving a speech that was contrary to one's most confident moral position would create a feeling of cognitive dissonance and thereby reduce a participant's level of confidence in their moral position. These analyses only used data from the consistent and inconsistent participants ($n = 9$, no control group). The results from the participants' difference scores indicated that there was not a significant change in confidence after giving a counterattitudinal speech. The overall mean difference score for those participants who gave a speech indicated a small, but non-significant, decrease in their

confidence levels ($M = -.278$, $SD = .712$). A one-sample t-test revealed that this difference score was not significantly different than the hypothesized mean of zero (a zero indicating no change in confidence), $t\ (8) = -.278$, $p > .05$. This indicated that participants who behaved in a manner inconsistent with their most confident moral beliefs did not change their confidence in their moral beliefs after giving a counterattitudinal speech.

A follow-up analysis was used to determine whether any change in confidence, regardless of the direction of change, occurred as a result of giving the counterattitudinal speech. When disregarding the direction of change in the participants' confidence scores, the analysis revealed that there was a change in the participants' confidence scores after giving a counterattitudinal speech. The mean change in participants' confidence scores was ($M = .500$, $SD = .559$). A one-sample t-test revealed that this change score was significantly different than the hypothesized mean of zero, $t\ (8) = .500$, $p < .05$. This analysis indicates that participants did alter their level of confidence after giving a counterattitudinal speech, but this change did not occur in consistent directions. Some participants increased their confidence, while others decreased their confidence.

These data suggest that participants did not *decrease* their confidence on their moral positions after behaving in a manner that was inconsistent to one of their strongest moral beliefs and therefore may not have experienced cognitive dissonance. Additional analyses were conducted to determine whether there were any differences among the participants depending on their moral maturity (DIT scores) and their demographic variables. An analysis using two levels of the DIT's *K*-score (Low and Middle), indicated that participants with Low *K*-Scores differed significantly from participants with Middle *K*-Scores. This analysis did not use participants with a High *K*-Score because this group contained only one participant. The participants with Low *K*-

Scores ($n = 5$) lowered their confidence ($M = -.700$, $SD = .570$) after giving a counterattitudinal speech while participants with Middle *K*-Scores ($n = 3$) actually increased their confidence slightly ($M = .333$, $SD = .577$). A one-way ANOVA was conducted using these two levels of the percentages of principled judgments (Low and Middle *K*-Scores) as the independent variable and the participants' difference scores as the dependent variable. This ANOVA yielded a significant difference between these two groups, $F(1, 6) = 6.108$, $p < .05$. Participants who had a lower percentage of principled judgments showed more cognitive dissonance after giving a counterattitudinal speech than participants with higher levels of principled judgments. However, the opposite effect was seen in Experiment One when participants were made aware of their already-inconsistent positions: participants with Low *K*-Scores increased their confidence while participants with High *K*-Scores actually decreased their confidence.

Another salient classifying factor that was used to analyze these data was the participants' class rank. In disregarding the control group, there was only one first-year participant and therefore her data was not included in this statistical analysis. When disregarding this participant, a one-way ANOVA demonstrated that there was no difference between the three remaining class years' confidence scores, $F(2, 5) = .755$, $p > .05$. As can be seen in Table 1, the mean of the difference scores of the participants across the three class ranks did not statistically differ from one another.

Table 1

Mean of the Difference Scores for Participants' Class Ranks

Class Year	N	Mean	SD
Fourth	3	-.500	.866
Third	2	-.250	.354
Second	3	.167	.764
First	1	-1.000	---

Lastly, an analysis was conducted using the participants' self-classifications of their religious standings. A one-way ANOVA demonstrated that there was not a significant difference between the religious and non-religious groups' confidence scores after giving a counterattitudinal speech, $F\ (1, 7) = .010$, $p > .05$. Participants who said they were religious (M = -.300, SD = .975) did not change their confidence more or less than participants who said they were not religious (M = -.250, SD = .289).

Part Two – The Change Scores

These data analyses were conducted on each of the four moral dilemmas separately. First, disregarding those participants who did not give a speech (the control group), analyses were conducted to determine whether participants showed a significant change in their confidence scores on each of the four issues after giving a counterattitudinal speech. The data suggested that participants did alter their confidence on each of the four moral issues after giving a counterattitudinal speech. As indicated in Table 2, the mean of the participants' change scores

suggests that participants changed their confidence in their position after giving a counterattitudinal speech.

Table 2

Mean Change Scores for Each Moral Dilemma

Moral Issue	Mean	DF	*t*	*p*
Stem Cell	.833	8	3.333	.0052
Abortion	.500	8	2.683	.0139
Death Penalty	.611	8	3.051	.0079
Euthanasia	.833	8	2.673	.0141

This change in confidence is seen in the means of the stem cell, abortion, death penalty, and euthanasia issues. Four one-sample *t*-tests were conducted using the participants' change scores as the dependent variable. These *t*-tests suggested that there was a significant change in a person's confidence score when the mean of the change score was compared against a hypothesized mean of zero, t (8) = .833, .500, .611, .833, $p < .05$, for the stem cell, abortion, death penalty, and euthanasia dilemmas respectively. These analyses suggested that behaving in a manner that was inconsistent to one's most confident moral beliefs had an effect on a person's confidence on all their moral decisions. The reasons why the direction of change varied cannot be determined using these data, however.

While the experimental group participants altered their confidence on all four issues following a counterattitudinal speech, this effect was lost after dividing the experimental

participants into their consistency group to investigate which groups changed their confidence more than others. For these analyses, these same participants were divided into two classifying groups: consistent and inconsistent. Participants who were classified as consistent or inconsistent both gave a counterattitudinal speech, but only the participants in the inconsistent group were told prior to their counterattitudinal speech that their positions were inconsistent according to the principle of the sanctity of life. These analyses indicated that these two groups did not differ significantly from one another on each of the four issues. As is suggested by the data presented in Table 3, there was no predictable pattern of a person's change in confidence depending on whether they were classified as consistent or inconsistent.

Table 3

Mean Change Scores for Consistent and Inconsistent Participants on Each Moral Dilemma

		Stem Cell		Abortion		Death Penalty		Euthanasia	
Group	**N**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Consistent	5	1.000	.791	.300	.447	.700	.671	1.300	.975
Inconsistent	4	.625	.750	.750	.645	.500	.577	.250	.500

Four one-way ANOVAs were conducted using the participants' consistency (consistent and inconsistent) as the independent variable and the participants' change scores as the dependent variable. These ANOVAs did not yield any statistically significant main effects, $F(1, 7) = .522, 1.537, .222, 3.769, p > .05$, for the stem cell, abortion, death penalty, and euthanasia dilemmas respectively. The lack of a significant change in confidence on each of the

four dilemmas showed that the consistent group did not differ from the inconsistent group in their change in confidence after giving a counterattitudinal speech. This suggests that the extra manipulation of making participants aware of their inconsistent positions did not create an additional feeling of cognitive dissonance. This result is consistent with the findings in Experiment One where participants did not significantly change their confidence after being made aware that their positions were inconsistent according to the underlying moral/societal principle.

A second group of analyses were conducted to investigate whether there was any difference in a participant's change in confidence on each of the four moral dilemmas depending on whether they did or did not give a counterattitudinal speech (experimental and control groups). Participants in the experimental group did not differ significantly on each of the four issues from participants in the control group. As seen in Table 4, participants in the experimental group changed their confidence on all four dilemmas slightly more than participants in the control group, but this difference was not statistically significant.

Table 4

Mean Change Scores for Experimental and Control Groups on Each Moral Dilemma

		Stem Cell		Abortion		Death Penalty		Euthanasia	
Group	**N**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Experimental	9	.833	.750	.500	.559	.611	.601	.833	.935
Control	8	.250	.378	.250	.378	.312	.458	.625	.744

Four one-way ANOVAs were conducted using the two groups (experimental and control) as the independent variable and the participants' change scores on the four issues as the dependent variable. These analyses did not result in any significant main effects for the different moral dilemmas,

F (1, 15) = 3.930, 1.134, 1.300, .254, $p > .05$, for the stem cell, abortion, death penalty, and euthanasia dilemmas respectively. While the p values were not significant, there was a slight trend in the data that suggested that participants who gave a counterattitudinal speech showed more change in their confidence scores on the stem cell, abortion rights, and death penalty dilemmas than participants who did not give a counterattitudinal speech. However, the results from these analyses indicated that giving participants a counterattitudinal speech did not create more cognitive dissonance on any of the four moral positions (as indicated by the lack of change in the participant's confidence levels on all four dilemmas) than not giving participants a counterattitudinal speech.

After analyzing the means from the change scores on each issue, no further analyses were conducted for several reasons. As is seen in Table 4, the standard deviations for both groups on all four moral dilemmas were either equal to or larger than the means for each group. The large variability of the participants' change in confidence score, as indicated by these large standard deviations, suggests that these data do not represent a normal distribution. Participants altered their confidence after giving a counterattitudinal speech, but some participants decreased their confidence while others increased. This suggests that the data represent a bimodal distribution and that a fundamental assumption of parametric tests (i.e., having a normal distribution) is being violated. Any findings from subsequent analyses of these change scores become suspect and so are not included in the results section because of this bimodal distribution.

Discussion

The main question guiding this second experiment was to investigate whether an oral interview would create cognitive dissonance in the same way that the written interview created cognitive dissonance in Experiment One. In addition, changing the participant's behavior to an oral interview was to use the preferred method of conducting moral judgment interviews (Colby & Kohlberg, 1987). In Experiment One, participants experienced cognitive dissonance after writing a counterattitudinal essay regardless of any classifying variables. In contrast, the results from this experiment did not provide similar findings. Having participants engage in an oral interview and give a counterattitudinal speech (rather than a written counterattitudinal essay) did not lower the participants' confidence scores in their moral positions. Participants did *change* their confidence in all of their moral positions after engaging in the counterattitudinal behavior, but the direction of the change in confidence (increase or decrease in confidence) did not follow a consistent direction. Since participants did not lower their confidence scores, it is likely that they did not experience cognitive dissonance.

These results suggest that an oral interview rather than a written interview was not a strong enough behavioral manipulation to create a feeling of cognitive dissonance in the participants' moral beliefs. Perhaps participants who wrote an essay in Experiment One felt more invested in the problematic outcome of their counterattitudinal essay since they were able to see and possibly re-read their finished essay. In contrast, since participants who gave a speech never saw the finished recording of their speech, they may not have felt as invested in the problematic outcome of their behavior. Previous researchers investigating cognitive dissonance have suggested that certain criteria must be met in order for cognitive dissonance to be created (Cooper & Fazio, 1984) and one of these criteria concerns the participant's perceived investment

in his or her dissonant behavior. In addition, it may be necessary to include in these researchers' proposed criteria that the type of behavior used to create cognitive dissonance is important in trying to create cognitive dissonance effectively. It may simply be the case that giving an oral rather than a written interview, while beneficial for the purposes of analyzing moral judgments, does not allow participants to feel as invested in their moral positions. As a result, no cognitive dissonance was created when the dissonant cognition of the counterattitudinal speech was introduced.

Qualitative Analysis

The results from Experiment Two attempted to provide further information regarding the relationship between logical reasoning and moral reasoning. However, these results did not provide conclusive evidence in support of or against this relationship. The results from Experiment One support Kohlberg's theory that moral reasoning is tied to logical reasoning since cognitive dissonance was effectively created among a person's moral beliefs. However, the same cannot be concluded from Experiment Two due to a methodological change. Since the lack of significant results cannot provide conclusive evidence in support of or against the assumed relationship between logical and moral reasoning, it became necessary to analyze the participants' actual moral judgments through a qualitative analysis to understand better the relationship between logical and moral reasoning.

Since moral reasoning involves a person's judgments on moral dilemmas, it becomes necessary for a researcher to analyze these judgments as part of a qualitative analyses. The first step in a qualitative analysis of an individual's moral reasoning involves assuming a phenomenological standpoint (Colby & Kohlberg, 1987). This underlying assumption implies that the researcher attempts to understand the participants' moral reasoning in their own stated

terms, rather than inferring or supplying their unstated motivations. The person's responses are then analyzed to identify particular themes in the person's moral judgments. This involves reading (and re-reading) the person's responses to identify particular themes apparent in their reasoning to the individual dilemmas, as well trying to understand which themes traverse individual dilemmas and compose their overall moral framework. After gaining a general knowledge about the person's moral reasoning, the researcher begins a thematic analysis. This is a systematic, but malleable coding procedure that involves creating categories from the themes apparent in the person's responses (and adjusting those categories if necessary) and then coding the person's responses according to their appropriate thematic categories. This process is described by researcher Charmaz (2000) as being more creative than quantitative analysis because, "unlike quantitative coding, which means applying preconceived codes (all planned before the researcher even collects data) to the data, qualitative coding means creating the codes as you study your data" (p. 37). In essence, the coding system reflects the procedures and individuals developing it. The coding system is dependent on the person's responses to the dilemmas and is representative of the individuals being analyzed. This is more likely to adequately reflect the data specific to each study rather than imposing outside codes that may not do the same.

The following analysis was conducted to provide supplementary data to Experiment Two's results. Since the results from Experiment Two could not provide conclusive evidence in support of or against the relationship between logical and moral reasoning, the following qualitative analysis was directed toward eliciting what other factors involved in moral reasoning may have contributed to these results.

Method

Participants

This qualitative analysis used 12 of Experiment Two's 17 female participants between the ages of 18 to 21 years old to investigate the components of moral reasoning. Since the control group participants were not tape-recorded during their interviews, only the 12 participants from the experimental group were used in this analysis.

Procedure

The procedure used to obtain participants' responses to moral dilemmas was the procedure described in Experiment Two's Method section. This qualitative analysis, however, only used participants' responses to five of the six moral dilemmas presented in Experiment Two. The stem cell dilemma was not used in this analysis because a number of participants stated they were not familiar with the issue and so their moral judgments on that issue may have been less indicative of their overall moral reasoning. The remaining dilemmas used were about abortion rights, the death penalty, euthanasia, a callous passerby, and a town robbery. All of the participants' interviews, excluding the control group, were tape-recorded and transcribed to create a readable text document that contained the participants' moral judgments.

Coding Using Traditional Theories of Moral Judgment

This qualitative analysis began by grounding itself among the two traditional theories that guide the majority of moral reasoning research: Kohlberg's theory of moral development and Gilligan's theory of moral orientations (Colby & Kohlberg, 1987; Colby, Kohlberg, Gibbs, & Lieberman, 1983; Gilligan, 1982; Gilligan & Attanucci, 1988; Lyons, 1983). This involved reading and coding the participants' responses according to two separate procedures and resulted in participants being classified according to a moral stage and a moral orientation.

Kohlberg Stage Classifications

For a Kohlberg classification, participants were assigned a stage score according to Kohlberg's six-stage theory of moral development (Colby & Kohlberg, 1987). Participants' responses to the moral dilemmas were scored according to a procedure that was adapted from Colby and Kohlberg (1987). Participants were given two types of stage scores: an individual dilemma stage score and an overall stage score. To determine a participant's individual dilemma stage score, the participant's responses were coded into basic units called interview judgments. Following the criteria developed by Colby and Kohlberg (1987), responses were classified as interview judgments when they contained evaluations, judgments, or opinions that reflected how the participant addressed, handled, and resolved moral dilemmas. The interview judgments provided insight into the specific factors participants considered to be most important when making a decision in the moral dilemma. Participants' interview judgments were given a stage classification when the researcher judged that the response reflected one of the six stages of moral development described in Colby and Kohlberg (Vol. 1, 1987) or if the interview judgment was found in the corresponding manual used to assign interview judgments with particular stage scores (Vol. 2, 1987). The following participant's response after being asked this question about euthanasia is an example of an interview judgment that was classified as Kohlberg's Stage 3:

> **Should Dr. Jefferson have given her the drug that allowed her to die?**
>
> *I want to say no just because, well, it's taking someone else's life, which you should never really have that power to do. But at the same time, she was in a lot of pain, so I guess I'm borderline. But he did talk to the family and I guess they went with it, so if it was in the best interest of everybody then…*
>
> **So then he should have done it?**
>
> *Yeah.*

Colby and Kohlberg (1987) described this response as characteristic of Stage 3:

> In this judgment, rightness of an act depends on social consensus: if the decision reflects shared values or concerns, if people agree, then it must be right; if people aren't consulted or do not agree, it is not right. There is an assumption of mutual concern among all of the people: the woman, the relatives, and/or the law, other doctors, etc. (Vol. 2, p. 298).

This Stage 3 description also corresponds to the Stage 3 overall description: "Living up to what is expected by people close to you or what people generally expect of people in your role as son, brother, friend, etc." (Vol. 1, p. 18).

After coding all interview judgments for a specific dilemma, the most frequent stage score was identified and assigned as the most representative stage for that particular dilemma (the individual dilemma stage score). Next, the most frequent stage score across all five individual dilemmas was used to assign an overall stage score. In cases where two stages were equal in their frequency and if the stages followed a consecutive order, a participant was given a transitional stage as a result (such as a Stage 2/3 or 3/4). If the two stages that showed equal frequency were not in consecutive order (such as an equal amount of Stage 3 and Stage 5 judgments) or if the participant did not show a majority preference for two stages, then the participant's overall Kohlberg stage score was considered to be ambiguous.

Gilligan Moral Orientation Classifications

To follow Gilligan's theoretical framework, Lyons (1983) outlined a procedure to code individuals according to Gilligan's two moral orientations. In this system, a participant's responses were coded to reflect a particular orientation to reason morally from a Justice, Care, or Care/Justice orientation. Similar to Kohlberg's stage scoring procedure, a participant's responses were coded into basic units labeled interview judgments. A participant's interview judgments were assigned one of the three moral orientations when the researcher judged that the response's considerations matched the orientation criteria in Lyons (1983). The interview judgment was

assigned a Care orientation if these were its principal concerns: the maintenance or restoration of relationships, the welfare or well-being of another, the avoidance of conflict, or a concern for the situation instead of a concern for the principle. Similarly, the interview judgment was assigned a Justice orientation if these were its principal concerns: concerns for fairness, obligation, duty, and commitments to the self and other; standards, rules, or principles for the self or society; and a concern for the principle instead of the situation. The following participant gave an example of an interview judgment that was classified according to a Care orientation after being asked whether cheating an elderly man of borrowed money was worse than stealing from a bank:

> **Which is worse, stealing or cheating?**
>
> *I would have to say cheating. Because stealing – it's really not hurting anybody except where ever he got it from. . . . The cheating thing, not only is he stealing money from someone, but I mean, you have to feel kind of sorry [for the elderly man]. He is an old retired guy, you know. Have some sympathy for him, you know? It's hurting him in a way, too, cause it's, you know, he's doing this out of the goodness of his heart and then we got this burglar guy just kinda walking all over him and taking advantage of the fact that he is a nice guy. It's not very nice.*

This participant's interview judgment was classified as having a Care orientation because her predominant focus is to alleviate another person's pain or suffering. This was seen by her reference toward feeling sorry for the elderly man because the theft occurs at a personal level, whereas the theft at the bank occurs at an impersonal level.

In the same manner that the Kohlberg stage score was given to each moral dilemma, a Gilligan moral orientation was assigned to each of the individual moral dilemmas and was also summed to provide an overall moral orientation score. While there was variability in a person's moral orientation, the orientation that appeared the most frequently was chosen as the participant's overall moral orientation. In cases where, after summing the participant's orientations across the individual dilemmas, the cumulative moral orientation classification had

equal amounts of Care and Justice orientations, the participant was given a classification of a Care/Justice orientation.

Distribution of Moral Stages

Participants showed a range of stages when given an overall Kohlberg stage score. There were two participants in each stage represented (Stages 2, 3, and 4) as well as for the transitional and ambiguous participants. When combining stages into Kohlberg's three levels of morality, the majority of participants (*n* = 6) were classified as having conventional morality (Level 2). As suggested by Colby and Kohlberg (1987), most adolescents and adults in Western societies have conventional morality, and the distribution of participants in this sample reflects that standard. As shown in Figure 1, the remaining participants were divided between showing Level 1's preconventional morality (*n* = 2), an ambiguous level of morality (*n* = 2), or transitioning between preconventional and conventional morality (*n* = 2). There were no participants who showed postconventional morality (Level 3).

Insert Figure 1 About Here

At this point, it may be necessary to consider the two stages that compose conventional morality, that is Stages 3 and 4. In criticizing Kohlberg's theory, researchers such as Holstein (1976) and Gilligan (1982) have suggested that females were scoring lower (Stage 3) than males (Stage 4) using Kohlberg's stage theory. The results from this analysis do not support this criticism of a gender bias in Kohlberg's theory. In this sample of only females, participants showed no more preference for Stage 3 moral judgments than for Stage 4 moral judgments. Other researchers have also not found support for Holstein's (1976) and Gilligan's (1982)

reported gender bias in Kohlberg's stage theory (e.g., Walker, 1984, 1991; Walker, de Vries, & Trevethan, 1987).

Distribution of Moral Orientations

Since Gilligan's theory of moral orientations was developed in consideration of gender differences, it would be expected that a sample of all-female participants would show a preponderance of care-based moral judgments. However, the results from this research did not suggest that females showed only care-based moral judgments. In fact, as illustrated in Figure 2, more participants were given a Care/Justice orientation ($n = 6$) than the other moral orientations.

Insert Figure 2 About Here

While Gilligan (1982) suggested in the nascent development of her ethic of care theory that females and males differ in their approach to moral dilemmas, later empirical research by Gilligan and Attanucci (1988) suggested that the gender distinction between the two orientations may be that of a *preference* to reason using one or another moral orientation. In identifying patterns of care and justice in males' and females' responses to real-life moral dilemmas, they concluded that males and females used both Care and Justice orientations equally in making moral decisions. They added that males tended to prefer the Justice orientation while females tended to prefer the Care orientation. However, a meta-analysis of Gilligan's moral orientations showed that gender differences were weak (Jaffee & Hyde, 2000).

It is also important to note that participants did not show a preference for either moral orientation, but rather preferred to use both orientations equally. This suggests that a moral reasoning theory based only on justice or care (and not an integration of the two) does not

adequately reflect an individual's preference to use both justice- and care-based moral reasoning. A new theory that integrates these two moral orientations would more adequately explain these participants' preference for both care- and justice-based moral judgments.

Moral orientations also varied depending on the type of dilemma that was presented to the participants. In looking at the distribution of participants' moral orientations across the individual dilemmas, the data suggested that certain dilemmas "pulled" for certain orientations. As is illustrated in Figures 3 and 4, more participants approached the abortion dilemma using the Justice orientation, while more participants approached the euthanasia dilemma using the Care orientation.

Insert Figures 3 and 4 About Here

This distribution suggests an important point that moral orientation may be dilemma- or issue-specific. If participants vary their moral orientation depending on the issue presented to them, then it may be incorrect to suggest that individuals use one consistent approach in addressing multiple types of moral dilemmas.

Theories of moral reasoning have come under scrutiny regarding the issue of dilemma-based versus internally-based moral reasoning. Research has shown that a person's moral reasoning may be influenced by the content of the dilemma (Krebs, Denton, Vermeulen, Carpendale, & Bush, 1991; Carpendale & Krebs, 1995; Wark & Krebs, 1996). When the type of dilemma presented to participants is varied, participants may change their moral stage or moral orientation depending on which dilemma was presented. Wark and Krebs (1996) found that real-life dilemmas, which were more personal since they involved the participant, elicited more care-

based judgments than hypothetical dilemmas, which were more impersonal. In contrast, the impersonal hypothetical dilemmas elicited more justice-based moral judgments. This same effect was seen when the two dilemmas presented varied between prosocial moral dilemmas that involved acts of caring for others and impersonal moral dilemmas that involved acts of injustice against institutions. Krebs et al. (1991) found that when they scored the participants' responses according to each dilemma, the prosocial dilemmas elicited lower stages of moral reasoning while the impersonal moral dilemmas elicited higher stages of moral reasoning.

In this sample, participants did vary their moral orientation depending on the dilemma that was presented to them. This was particularly true for the abortion and euthanasia dilemmas. Yet, the two dilemmas ask similar questions person's rights concerning their own life: should persons have the *right to choose* concerning their own reproductive health or concerning the end of their life? Since these questions pose considerations of a person's individual rights, it would seem that participants should respond to both dilemmas' similar questions using a Justice orientation. However, participants responded to the question differently when it was about an abortion than when it was about euthanasia. This may illustrate that moral dilemmas may have unique differences that make them difficult to use in comparisons. The different natures of the abortion and euthanasia dilemmas can be illustrated by the following participant's varied moral orientation approach.

Should the woman have the right to choose when it comes to abortion?

> *Yes, I don't think that anyone else has the right to say that you don't have the right to choose whether you keep a child or not. It's your body and your life and depending on where you are in your life or certain situations such as rape, you may not want the child.*

This response suggests the participant is approaching abortion through a Justice orientation. Her responses showed a concern for the pregnant woman as having the right to make decisions for

herself, which is indicative of the Justice orientation (Lyons, 1983). While this participant did consider the welfare of the individual (which shows the participant understands the situation at hand), she maintained in the remainder of her responses to this dilemma that the right to choose was the main principle guiding her decision (which shows that the participant upholds the principle of autonomy rather than changing her decision based on the dilemma's circumstance). This type of reasoning is illustrated by the Justice orientation's concern "for the principle over the situation" in making moral decisions. In contrast, her approach to the euthanasia dilemma reflected a concern for the woman in pain and is indicative of a Care orientation.

> **In this scenario, when it comes to assisted suicide, should the woman have the right to make the final decision?**
>
> *It depends. If she is delirious and just in so much pain that she can't think straight, then no. I think he was right in going to the relatives because she didn't seem in total sound mind to make that decision.*

This participant showed a concern for the alleviation of the woman's pain, which is indicative of a Care orientation (Lyons, 1983). She also mentions that receiving the approval from the suffering woman's relatives was an important factor guiding her decision, which illustrates another characteristic of the Care orientation.

This participant's responses illustrates that there is something about the nature of euthanasia that involves more care-based considerations and something about the nature of abortion that involves more justice-based considerations. Since the woman who desires euthanasia is depicted as being in pain, the natural inclination for participants (who support euthanasia) may be to alleviate that pain. In contrast, the natural inclination for participants who support abortion would be to maintain autonomy in one's reproductive health. Since this stance on abortion would be supporting a moral principle such as personal autonomy, it would naturally be characterized by a Justice orientation.

Regardless of whether participants showed a natural tendency to reason using a Care or Justice orientation, or whether participants used a Care or Justice orientation depending on the dilemma being approached, it is important to remember that most participants from this sample used both orientations equally ($n = 6$). Ultimately, a person with a preference for either a Justice orientation or a Care orientation may still use the other orientation's moral judgments. This should illustrate that a person's moral reasoning does not lack any characteristic particular to one of the moral orientations, but rather a person's moral reasoning incorporates both orientations to yield a broader approach in handling moral dilemmas.

Moral Factors: The Components of Moral Reasoning

While moral reasoning has been conceptualized as an indicator of one's developmental stage (Colby & Kohlberg, 1987) or as preference to use a particular orientation when approaching moral dilemmas (Gilligan, 1982), this last section was an attempt to identify the main components of moral reasoning outside of these traditional theories.

This second approach in this qualitative analysis required a closer reading of the participants' responses and then coding those responses according to specific categories of moral factors. The participants' interviews were read and coded twice so as to have each response coded for the most accurate moral factor. A participant's response could contain many sentences, but was coded for only one moral factor. When the results from Experiment One were analyzed, it became apparent that participants were approaching moral dilemmas using four main considerations: logic, emotion, society, and morality. These four factors have also been identified as components of both Kohlberg's stages and Gilligan's moral orientations.

The first moral factor investigated was a participant's concern for logical reasoning. "Logic" was characterized as considerations of consequences and intentions, the ability to make

and defend a position in an argument, as well as the use of anecdotes and facts to support an argument. An example that was scored as two "logic" factors was shown in the following response to the abortion dilemma.

> **Should Theresa have gotten the abortion?**
>
> *From my point of view I would say no . . . She made the decision to go about it and you have to accept that there are risks that are going to be taken with that and everything happens for a reason. And like you know, you have to be a little bit – well obviously she acted responsibly since she was taking her birth control and all that good stuff – but I think that getting an abortion on her part was a little bit irresponsible.*
>
> **And why so?**
>
> *Because when you become sexually active, like the whole point of having sex is to procreate. And you know even if you don't want to have a kid at that point, you have to realize that there is a chance, you know. And I think that is just one of the responsibilities that one assumes when you make the decision to do it [have sex].*

In both of these statements, this participant shows a concern for the consequences of having an abortion as well as for being responsible for one's own actions and their consequences. These considerations also support her argument that having a child is one of the results of being sexually active and that one needs to be responsible for engaging in the behavior that leads to that result. As a result, these two responses were given two "logic" moral factors.

Another factor believed to be prevalent in the participants' responses was that of emotion. An "emotion" moral factor demonstrated a concern for the well-being of others and oneself, while also extended to statements of "feeling sorry for" others. The "emotion" moral factor was also characterized by the avoidance of making pronounced decisions for the characters in the dilemma because the decision involved the character and not themselves. This moral factor most closely resembles Gilligan's ethic of care. The following participant's responses to the euthanasia dilemma were categorized according the "emotion" moral factor:

If you were to make a vote, would you want euthanasia to be legalized?

> *I think that if there is truly absolutely nothing that can be done, and this person is in so much pain, and not just hurting them, but it is obviously hurting their family and other people surrounding them, then yeah, I would say it should be legal.*

This participant shows a strong concern for the alleviation of the dying person's pain and suffering as well as the surrounding family members' grief. Since this statement shows these concerns, it was classified as one "emotion" moral factor.

A third factor that was evident in participants' responses was labeled as society, or specifically considerations for society or humanity as a whole. This moral factor was characterized by a participant's concern for "being a good member of society" and also reflected the desire to avoid negative judgments from one's peer group. An example of a "society" moral factor can be seen in the following participant's response when she was asked about promises:

Why in general should a promise be kept?

> *It should be based on you, and you shouldn't want to be known as a liar or a cheater. So to uphold your own morals or ethics, then you as a good person should honor everybody whether you know them well or not.*

This participant responded to this question by wanting to be a "good person," as well as not being "known as a liar" in front of others. The "society" moral factor was distinguished from the "logic" moral factor in that it demonstrated a broad concern for society and one's social image.

A fourth factor seen in the participants' responses was a concern for general morality. This "morality" moral factor could be seen in the participants' responses when they separated their conception of morality from other conceptions of law, society, family, friendship, etc. Participants used this factor as a separate reason for "doing the right thing" and it was typically demonstrated by placing morality on a separate plane or continuum. Participants who appealed to morality as their moral factor said their actions were based on certain moral principles, either

derived from their life experience, their parental upbringing, or their investment in a religious belief system. This participant gave the following response after being asked what makes moral problems more complicated than scientific problems:

> **How are they more complicated?**
>
> *Because they contain the spiritual realm of morality.*
>
> **What do you mean by "the spiritual realm of morality"?**
>
> *Like a person's individual religious beliefs. I think every person brings something different to each situation, each scenario, be it how they were raised, where they were raised, what religion they've been exposed to, what level education, their socio-economic status, um . . . and you're never going to be able to control all of those variables.*

This participant's response demonstrates a "morality" moral factor in that she attributed the complexities of morality to having a spiritual component. This response suggests that she understands "moral" as being in a separate category than logical, emotional, or societal concerns.

Findings

After coding the 12 participants' interviews into moral factors, a total of 277 moral factors were found. The mean number of moral factors per interview was 23, ranging from a minimum of 16 to a maximum of 31 moral factors that were coded for any one participant. In total, there were 120 instances of logic, 88 instances of emotion, 30 instances of society, and 39 instances of morality. As seen in Figure 5, the "logic" moral factor was not more than 50% of the total moral factors, but it was the most common moral factor.

Insert Figure 5 About Here

To provide a comparison to this percentage, the same participants were asked during their interviews to rate how important these four factors were when they made their moral decisions on the moral dilemmas. Equal numbers of participants rated "logic" (5 participants, 42%) and "morality" (5 participants, 42%) as being the most important factor they considered when making their moral decisions. Only two participants said that "emotion" was the primary factor, while no participants said that "society" was the most important factor. However, 7 of the 12 participants (58%) rated "emotion" to be the second most important factor they used when making their moral decisions. Of course, when participants were asked to rank the four moral factors of emotion, logic, morality, and society, participants were not given any specific definitions regarding what these terms meant. In actuality, leaving the terms ambiguous to the participant was intentional so that participants would supply in their own mind what each of the four factors meant to them.

Next, these moral factors were analyzed according to Kohlberg's levels of morality and Gilligan's moral orientations. The data illustrated in Figure 6 suggest that, for Kohlberg's levels of maturity, there appears to be a similar pattern among both the preconventional and conventional levels of morality.

Insert Figure 6 About Here

Participants at the preconventional level had 48% of their moral factors labeled as "logic" and 34% of their moral factors labeled as "emotion." In a similar fashion, participants at the conventional level had 37% of their moral factors labeled as "logic" and 31% of their moral factors labeled as "emotion."

To understand better the moral factors according to Kohlberg's theory of moral development, participants' moral factors were considered using Kohlberg's stages. For these stage classifications, only those participants in Stages 2, 3, and 4 were used for this analysis, which meant that participants with transitional and ambiguous stages were disregarded. This was done so as to present findings that would only represent the clearest distinctions between the moral stages. The data illustrated in Figure 7 shows that Stage 4 participants' responses showed the highest percentage of "logic" moral factors, as would be expected from Kohlberg's theory.

Insert Figure 7 About Here

This contrasts Stage 4's lower percentage of "emotion" moral factors. Stage 2 and 3 participants showed fairly equal percentages of "logic" and "emotion" moral factors; and scores for society and morality were low across all three stages.

The distributions of moral factors by stage are important when considering some of the criticisms against Kohlberg's Stages 3 and 4. Since Stage 4 individuals are characterized as being concerned with maintaining social rules and norms, having these participants show more moral judgments that are based concerns for consequences and intentions (the "logic" moral factor) than for the well-being of others (the "emotion" moral factor) is what would be expected from Kohlberg's theory. Also, if Kohlberg's theory of moral development is tied to the development of logical reasoning, then individuals with higher stages of morality should show more considerations that are based on logical concerns. Participants in Stage 4 did demonstrate more "logic" moral factors than participants in Stage 3. This demonstrates that as individuals develop morally, they incorporate more logical reasoning into their moral reasoning.

Another interesting finding is the distribution of moral factors for Stage 3 participants. Stage 3 participants showed fairly equal considerations of "logic" and "emotion" when making moral judgments (32% and 38%, respectively). Having participants in Stage 3 show equal concerns for these two moral factors further illustrates that Stage 3 moral reasoning is not devoid of logical concerns. The Stage 3 moral reasoner does not disregard logical considerations when caring for other people. Rather, a Stage 3 individual incorporates both "logic" and "emotion" equally when making their moral judgments. In the same way, the distribution of moral factors for Stage 2 participants is equally divided between "logic" and "emotion" moral factors. While developmentally lower in morality than Stages 3 and 4, these participants displayed equal concerns for both "logic" and "emotion" in the same manner that the Stage 3 participants did.

The distribution of moral factors according to Gilligan's moral orientations also presents some interesting findings. As can be seen in Figure 8, all participants, regardless of moral orientation, showed higher amounts of "logic" moral factors than the other three classifications of "emotion," "society," and "logic."

Insert Figure 8 About Here

Interestingly, participants with a Care orientation showed more "logic" moral factors than participants with a Justice orientation. This does not follow what would be expected from Gilligan's theory of moral orientations. Her theory would predict that participants in the Justice orientation should demonstrate the highest amount of "logic" moral factors. The "logic" moral factor was characterized by concerns for consequences and intentions, which seems to more closely resemble the depiction of a Justice orientation as being concerned with impersonal

standards such as fairness and reciprocity. However, these current findings illustrate the opposite. Another pattern that violates predictions is demonstrated in the distribution of "logic" and "emotion" moral factors within the Care orientation. The Care orientation participants showed more "logic" moral factors than "emotion" moral factors.

These distributions present some interesting findings to use when considering Gilligan's theory of moral orientations. In labeling her theory as an "ethic of care," it would be easy to assume that the Care orientation would represent emotional concerns that are devoid of logic. However, this is not the case when considering these distributions of moral factors in the Care orientation. A better understanding of Gilligan's ethic of care would suggest that approaching moral dilemmas with considerations of caring for another person rests upon already-established logical reasoning. It is the incorporation of both types of moral judgments, care and justice, logic and emotion, that provides the Care orientation with the all-inclusive other-centered approach.

Discussion

This qualitative analysis presents some interesting supplemental considerations for the study of moral reasoning. Participants made moral judgments with considerations for four main moral factors. While considerations need to be made regarding the small sample size, the results indicated that participants did make logical considerations the most when making their moral judgments, which is consistent with Kohlberg's theory. However, it is important to note that considerations for oneself and others (the "emotion" moral factor) were also very, if at least not equally, prevalent in making moral judgments. In addition, the distribution of logic and emotion moral factors was consistent across the different classification systems of Kohlberg's stage theory and Gilligan's moral orientations.

The results from Experiment One suggest that there is a relationship between logical and moral reasoning because cognitive dissonance was effectively created among a person's moral judgments. These same results, however, were not found in Experiment Two. Since cognitive dissonance could not be created in Experiment Two, no decisive conclusions could be drawn regarding the relationship between logical and moral reasoning. However, the qualitative analysis supplements Experiment Two's results in that "logic" was not the only factor that participants considered when making moral judgments. In addition to logic, participants approached moral dilemmas using a mélange of considerations for others, society, and the abstract concept of "morality." It appears that when participants made moral decisions, they included more factors in their moral reasoning than simply arguments based on intentions and consequences.

Kohlberg's theory should not be entirely dismissed; moral reasoning does appear to demonstrate a strong logical component. However, when it comes to moral reasoning, more than just logical considerations need to be taken into account. Moral reasoning includes considerations of care and emotion in addition to logical considerations. The participants from this study supplemented their use of logic in moral reasoning with their concern for others, society, and morality. The results suggest that reasoning about the many factors inherent in a dilemma does not necessarily always entail using just logical reasoning. Participants showed through this qualitative analysis that moral dilemmas can be approached through rational arguments and considerations of consequences or intention, but dilemmas that are moral in nature require supplementing one's logical reasoning with considerations for others, society, and morality. The following participant describes how she incorporates logical and emotional considerations into her overall moral reasoning:

Should moral decisions be based on one's feelings or on one's thinking and reasoning about right and wrong?

> *I say thinking and reasoning because in reasoning you consider all of your feelings. I think that all of our thoughts and all of our rationale are affected by our feelings and emotions. We are not objective people. And I think our past experiences; I think our feelings, our morality, our religion, all of that plays into our logic, our rationale. So I say all of it.*

General Discussion

The results from these studies suggest many new factors to be considered for the study of moral reasoning. This research approached moral reasoning by investigating one of Kohlberg's main assumptions underlying the development of morality. Kohlberg's theory was predicated on the notion that moral reasoning was tied to logical reasoning in the form of cognitive development. As an individual progresses into the later stages of moral reasoning, he or she must necessarily show a higher level of logical reasoning in their cognitive processes.

The results from Experiment One supported Kohlberg's assumption that moral reasoning is tied to logical reasoning. This relationship was demonstrated by the effective creation of cognitive dissonance among a person's moral judgments. The presence of inconsistent cognitions among moral judgments creates a feeling of cognitive dissonance in the same way that inconsistent cognitions in logical reasoning create a feeling of cognitive dissonance. This result suggests that moral reasoning demonstrates characteristics similar to logical reasoning. The assumption that there is a relationship between the development of higher levels of cognition and higher levels of moral thought is substantiated by Experiment One's findings.

Another characteristic important to note from Experiment One was the importance of a behavioral component in the relationship between logical and moral reasoning. Cognitive dissonance was only created when participants were asked to *behave* in a manner that was

inconsistent with their most confident moral beliefs. In contrast, no cognitive dissonance was created when participants were made aware of an already-inconsistent moral belief. This illustrates that there must be a strong behavioral manipulation in order to create cognitive dissonance among a person's moral judgments. This suggests that individuals are content with having inconsistent beliefs even when they are made aware of these inconsistencies because the component that causes the cognitive dissonance, the behavior, is missing. Since there was no behavior involved in the already-inconsistent positions on the moral dilemmas, the participants did not feel motivated nor did they believe that their cognitions were inconsistent, and so did not experience cognitive dissonance.

Experiment Two did not show the same results when the behavior used to create cognitive dissonance was changed. Inconsistent with the findings from Experiment One, participants did not demonstrate a decrease in their confidence scores after engaging in a counterattitudinal behavior. These findings suggest that the effective creation of cognitive dissonance depends on the strength of the behavior used to create dissonant cognitions. It is important for researchers to consider implementing a strong behavioral manipulation so as to be assured that cognitive dissonance will be experienced.

Since cognitive dissonance was not created in Experiment Two, there could be no conclusions drawn as to the nature of the relationship between logical and moral reasoning. While qualitative analyses are not a preferred method used to derive empirically-based findings, the results from this analysis illustrated some important factors that need to be considered when investigating the nature of the relationship between logical and moral reasoning. The qualitative analysis suggested that participants approach moral dilemmas using more than just logical considerations. The four moral factors believed to be evident in a person's moral reasoning

suggested that participants incorporate in their moral reasoning considerations of logic in combination with considerations for others, society, and also abstract concepts of morality. While logic-based considerations were the most frequent, these considerations were not more than 50% of the factors used when making moral judgments.

Participants make a considerable amount of moral judgments that involve caring for other people. In analyzing the participants' moral judgments according to the traditional classifications provided by Kohlberg's stages and Gilligan's moral orientations, it became apparent that participants made moral judgments that incorporated logical judgments with considerations for other people. In fact, when considering Gilligan's moral orientations, participants who were classified as having a Care orientation showed more judgments based on logical moral factors than participants in the Justice or Care/Justice orientation. Findings such as these illustrate that a person, even if they are classified as being more inclined to reason using a certain orientation, incorporates logical, emotional, and other-centered considerations into a holistic framework of moral reasoning. Indeed, a care orientation is not devoid of logic, nor is a justice orientation devoid of emotion.

The results from this study suggest that the best method of investigating moral reasoning is a combination of quantitative and qualitative analyses. The results from Experiments One and Two provided meaningful information that can be used to understand moral reasoning in terms of its relationship to logical reasoning. However, the results from these experiments could not indicate what other factors were being considered in a person's moral reasoning. Indeed, only a qualitative analysis of the participants' actual moral judgments provided this information. This illustrates that future research needs to incorporate both quantitative and qualitative approaches when investigating moral reasoning. Moral reasoning research needs to be grounded in

quantitative methods but supplemented with qualitative analyses so that researchers can draw decisive conclusions about a typically complex behavior.

The results from this thesis have larger implications for the study of moral reasoning. While Kohlberg's theory presents an adequate non-gender biased theory of moral judgment, its ability to describe morality holistically is insufficient. In the same manner, Gilligan's theory of moral orientations tries to separate the two perspectives of morality (care and justice) into two separate orientations, when it may be the case that a person's overall approach in moral reasoning may be a combination, and not a separation, of the two perspectives. The strengths of both Kohlberg's and Gilligan's theories need to be integrated to provide a holistic approach to morality that considers moral judgments as being based on logical considerations with sufficient room to allow for considerations of others, society, and morality in general. Perhaps an integrative theory would suggest that moral stages are not fundamentally different than one another, but are rather preferences to reason using predominantly logical, emotional, or societal factors.

A more holistic approach to moral reasoning would need to account for the different types of moral dilemmas presented to individuals. Consistent with research by Krebs et al. (1991) and Wark and Krebs (1996), the results from the qualitative analysis suggest that different dilemmas evoke different moral considerations. In Wark and Krebs' research (1996), dilemmas that were more philosophical and hypothetical in nature tended to evoke higher stages of Kohlberg's moral reasoning and also pulled for more justice-based moral judgments in Gilligan's theory of moral orientations. In addition, Krebs et al. (1991) found that the type of dilemma alone did not determine a person's moral judgments and that oftentimes a single dilemma evoked different stages of reasoning. The integrative model presented by this group of researchers

suggests that moral reasoning is best understood as the combination of individuals' internal dispositions, their ability to interpret the various factors involved in the dilemma, and their motivation guiding those interpretations (Krebs et al., 1991; Wark & Krebs, 1996). An integrative model that accounts for the content of the moral dilemma as well as the individuals' use of logic and emotion moral factors and justice- and care-based moral judgments would more adequately describe the moral reasoning that was found in the present study.

Philosophical Distinctions

While an integrative model of moral reasoning represents an advancement for Kohlberg's original theory, recent research has suggested a movement away from the Kohlbergian paradigm. In returning to the philosophical underpinnings of moral reasoning research, Haidt (2001) suggested that moral decisions are the result of unconscious intuitions about the moral nature of the dilemma and not the process of deliberate reflection and rationalization as Kohlberg's theory suggests. The remainder of this discussion section will address the emergence of a theory of moral intuitionism in contrast to traditional theories of moral rationality.

Philosophical theories of moral rationality such as Kant's (1785/1988) rationalist ethical theory suggest that moral decisions are made as the result of conscious, rational judgments about the inherently moral nature of the dilemma. In this paradigm, moral decisions are made by a process of logical reasoning about the many factors inherent in a dilemma. Moral rationality theories give primacy to the role of rational judgments in making moral decisions and very little credence is given to the role of emotive and intuitive factors. In contrast to theories of moral rationality, philosophical theories of intuitionism such as Hume's (1777/1960) theory of moral sentiments suggest that individuals have an intuitive moral sense that guides their moral decisions. These moral intuitions produce a visceral response of approval or disapproval for the

inherently right or wrong choice in a moral dilemma. This theory suggests that moral intuitions first determine a person's moral decision and then moral judgments provide the justification for that decision.

Recent research has found support for an intuitionist approach to moral reasoning (e.g., Haidt, Bjorklund, & Murphy, 2000; Haidt & Hersh, 2001; Haidt, Koller, & Dias, 1993). One experiment by Haidt et al. (2000) asked participants to make a moral decision about a dilemma that had no apparent consequences (e.g., a dilemma that asked whether a one-time, risk-free sexual relationship between a sister and brother was right or wrong). The majority of participants immediately said that the sexual relationship was wrong, but they could not surmise a justifiable explanation as to why. The researchers argued that a rationalist approach such as Kohlberg's could not explain how participants made moral decisions in the absence of justifications. Instead, they suggested that the individuals' responses to the moral dilemma were based on intuitions about the inherent wrongness of incest. This intuition about incest led participants to try to justify why the sexual relationship was wrong, but they were not able to devise valid reasons for their judgment.

Another concept that may contribute to future research in antirationalist theories of moral reasoning is the concept of moral heuristics. In a review of research on heuristics and biases, Sunstein (in press) suggested that individuals use quick and simple principles (heuristics) to guide not only their everyday decisions, but also their moral decisions as well. In looking at policy-making decisions, he suggested that some policies merely look effective because people are relying moral heuristics rather than moral judgments to make their decision. The existence of moral heuristics suggests that individuals are using more than just logical reasoning when making their moral decisions.

An intuitionist approach to moral reasoning needs more research before it displaces traditional rationalist theories. More evidence is needed to determine whether moral decisions are made by moral intuitions alone or whether moral intuitions and moral judgments are both present in making a moral decision. It may be the case that an individual responds to a moral dilemma initially with a moral intuition, but the individual may undergo a process of moral deliberation before making a final decision. At best, research that begins to recognize the importance of moral intuitions in moral decisions may result in a fundamental shift in psychological investigations of moral reasoning. At the very least, it represents a movement away from the rationalization of our behaviors and offers new insights into the connection between moral thought and moral actions.

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Figure 1

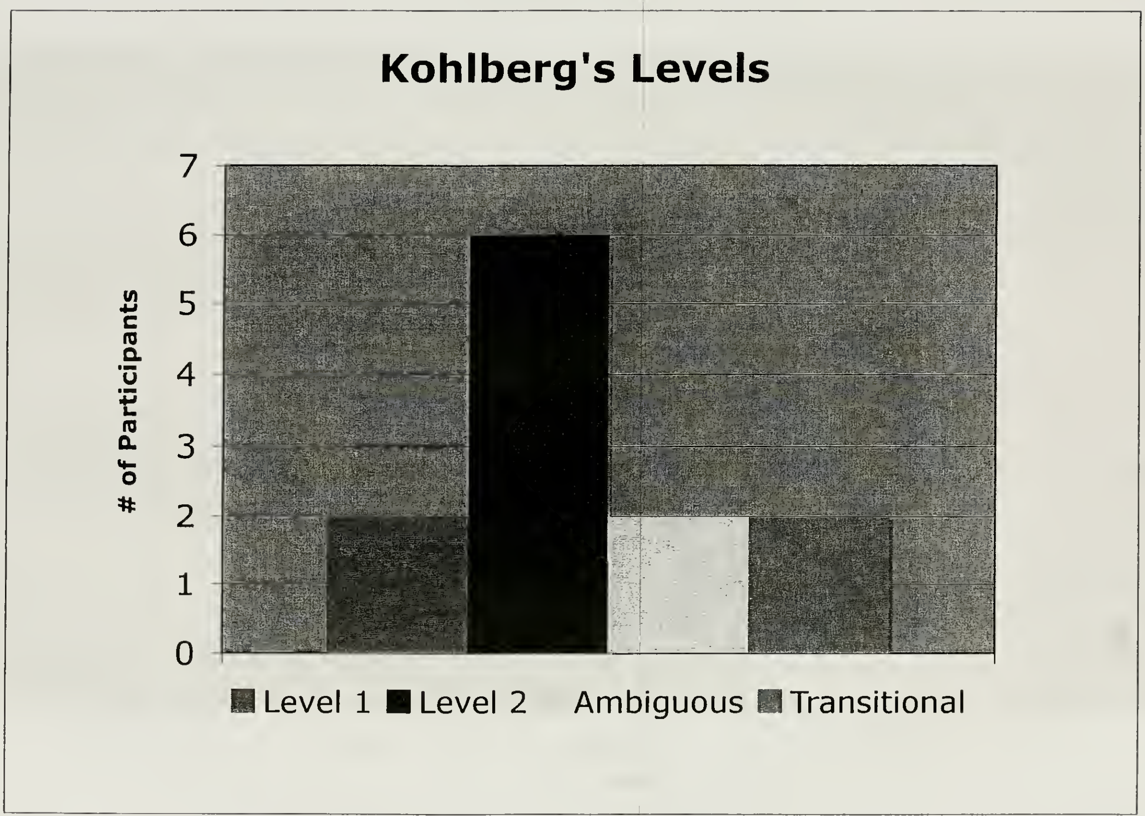

Kohlberg's Levels
# of Participants
0
1
2
3
4
5
6
7
Level 1
Level 2
Ambiguous
Transitional

Figure 2

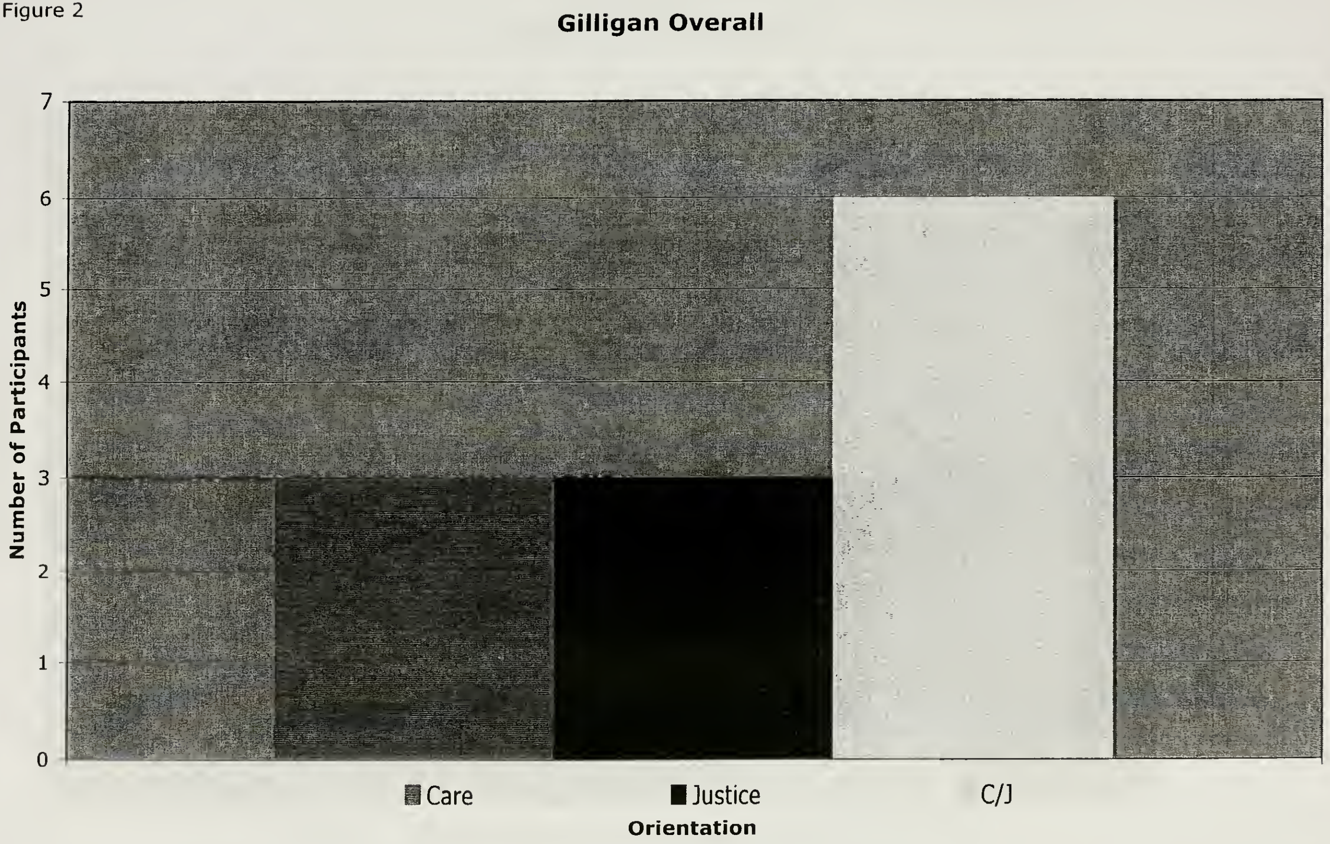
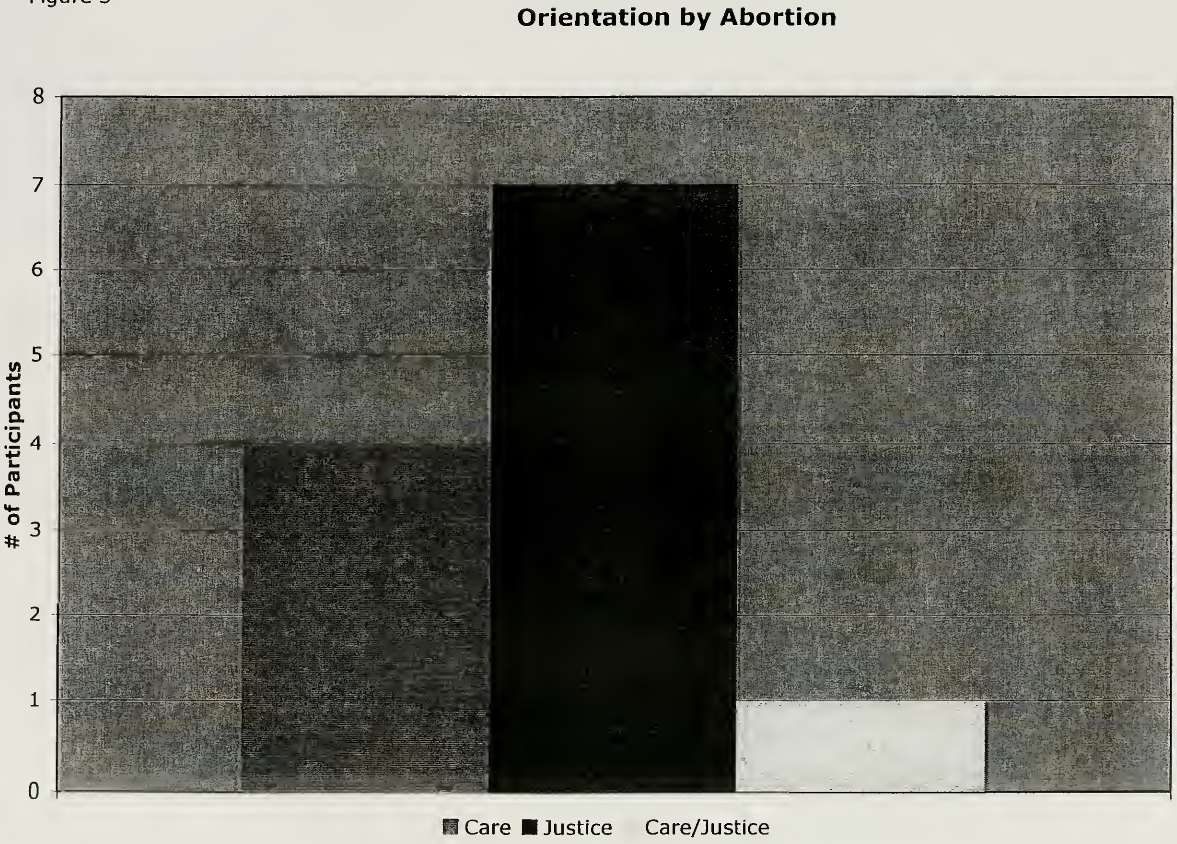
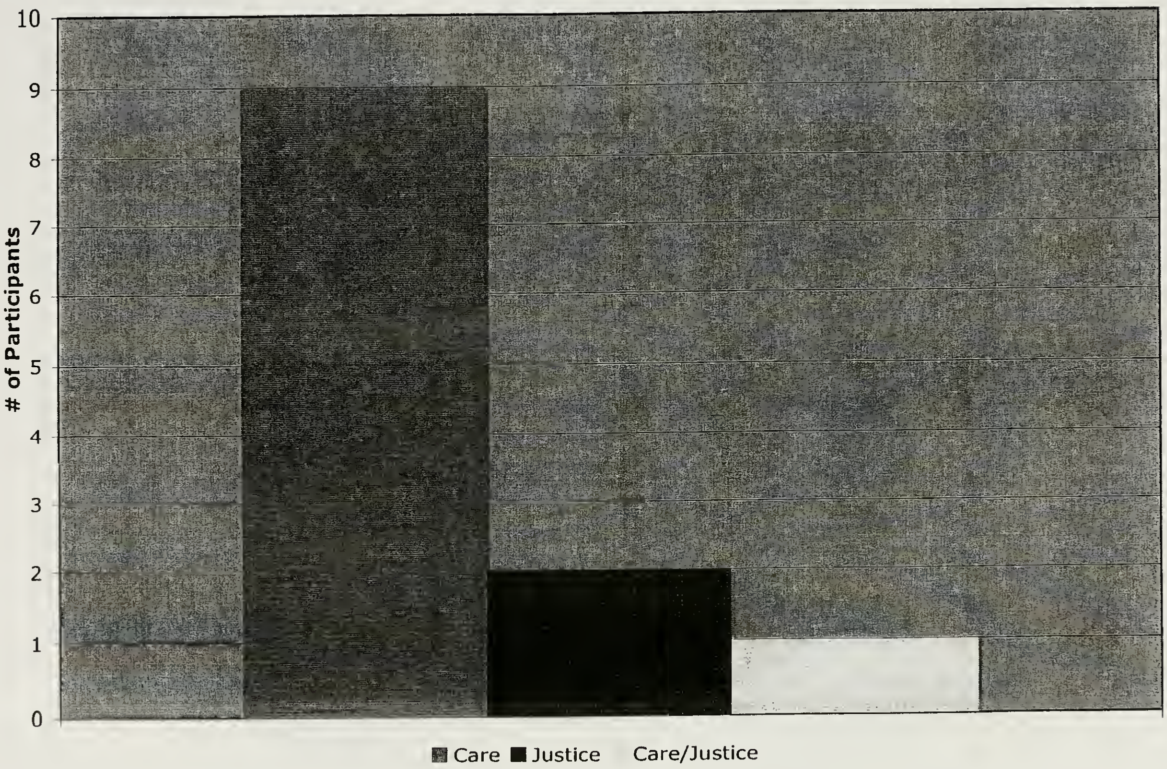

Gilligan Overall
Number of Participants
0
1
2
3
4
5
6
7
▨ Care
■ Justice
C/J
Orientation

Figure 3



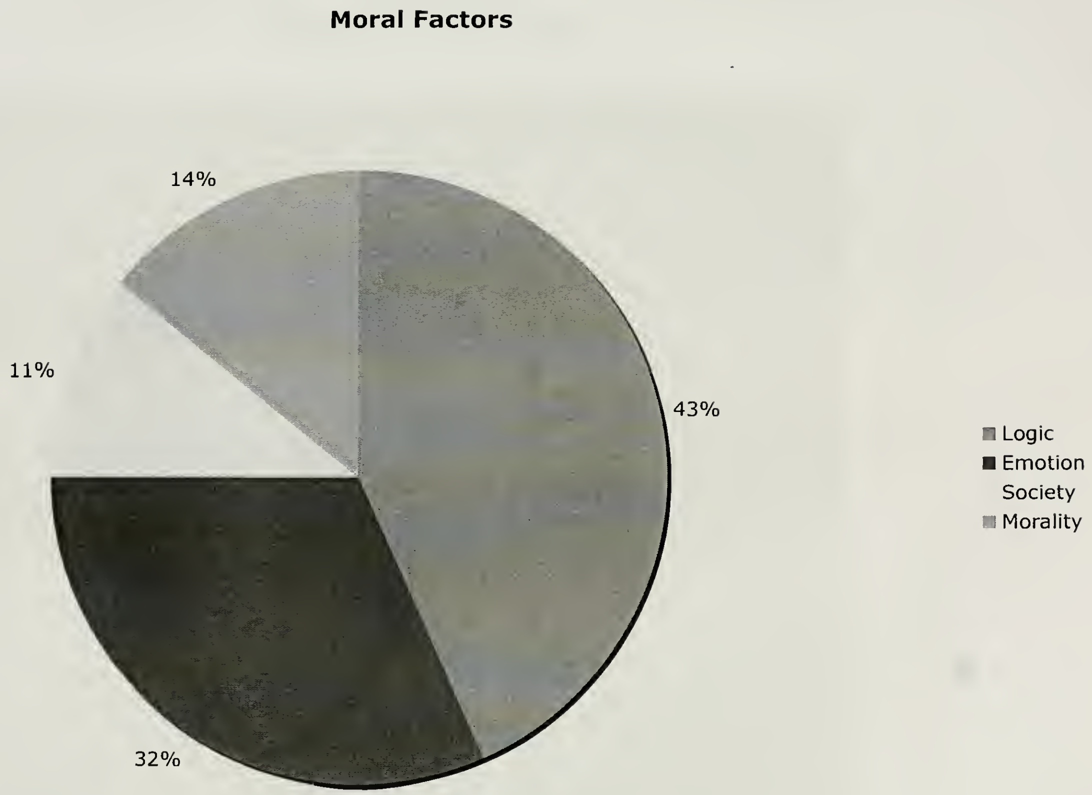
Orientation by Abortion

Figure 4



Orientation by Euthanasia

Figure 5



Moral Factors

Figure 6

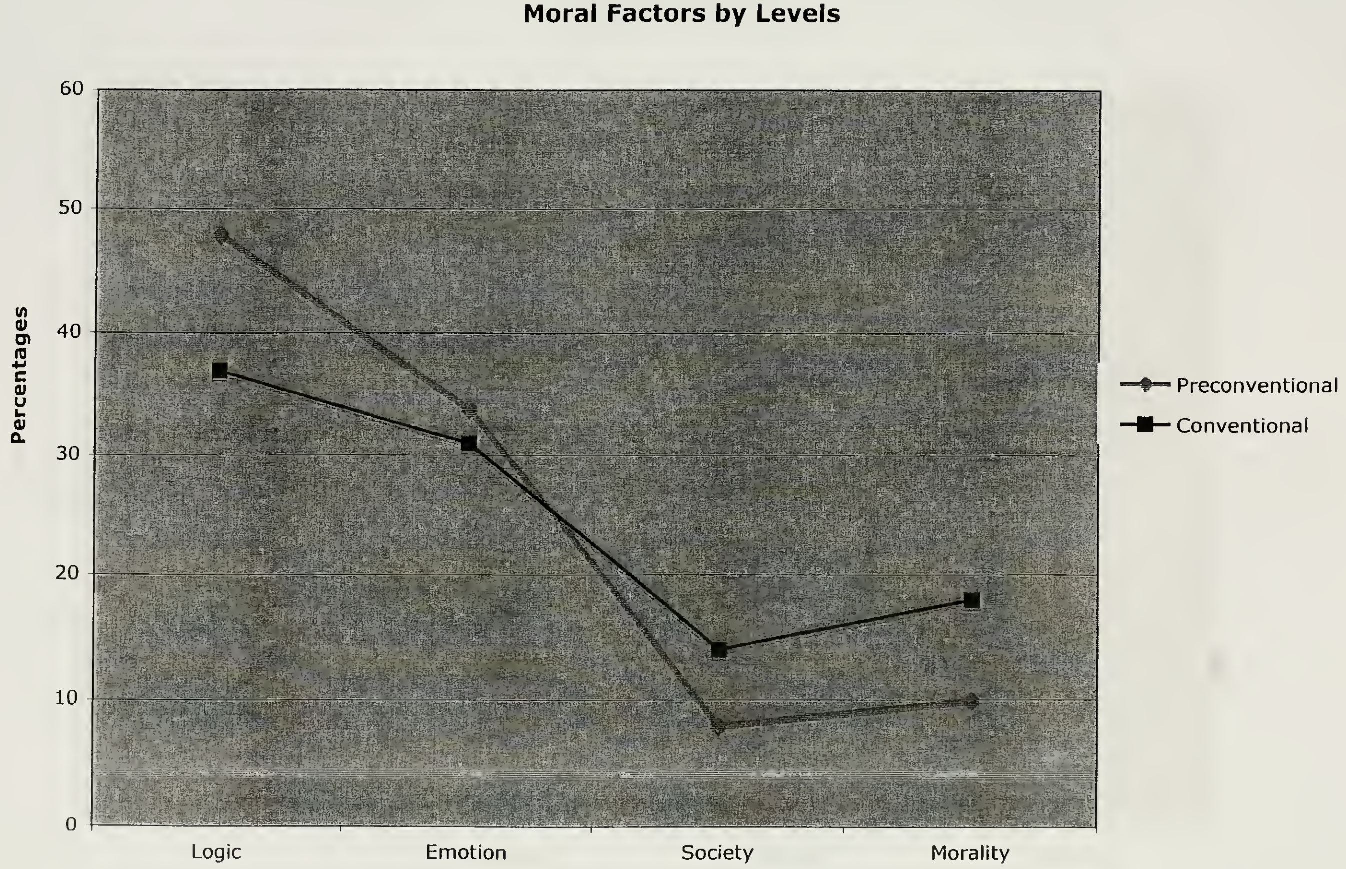

Moral Factors by Levels
Percentages
60
50
40
30
20
10
0
Logic
Emotion
Society
Morality
Preconventional
Conventional

Figure 7

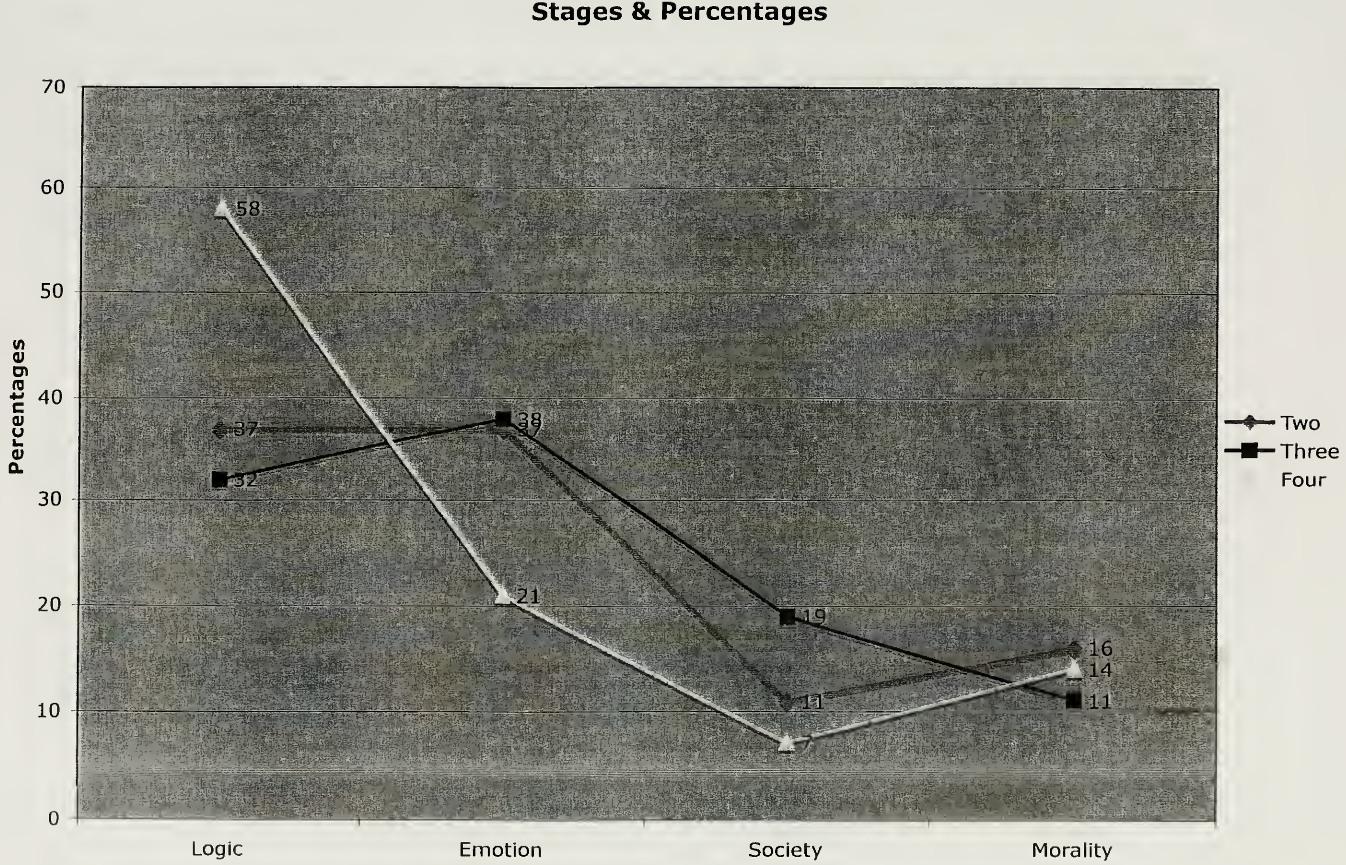

Stages & Percentages
Percentages
70
60
50
40
30
20
10
0
Logic
Emotion
Society
Morality
58
37
32
38
37
21
19
11
7
16
14
11
Two
Three
Four

Figure 8

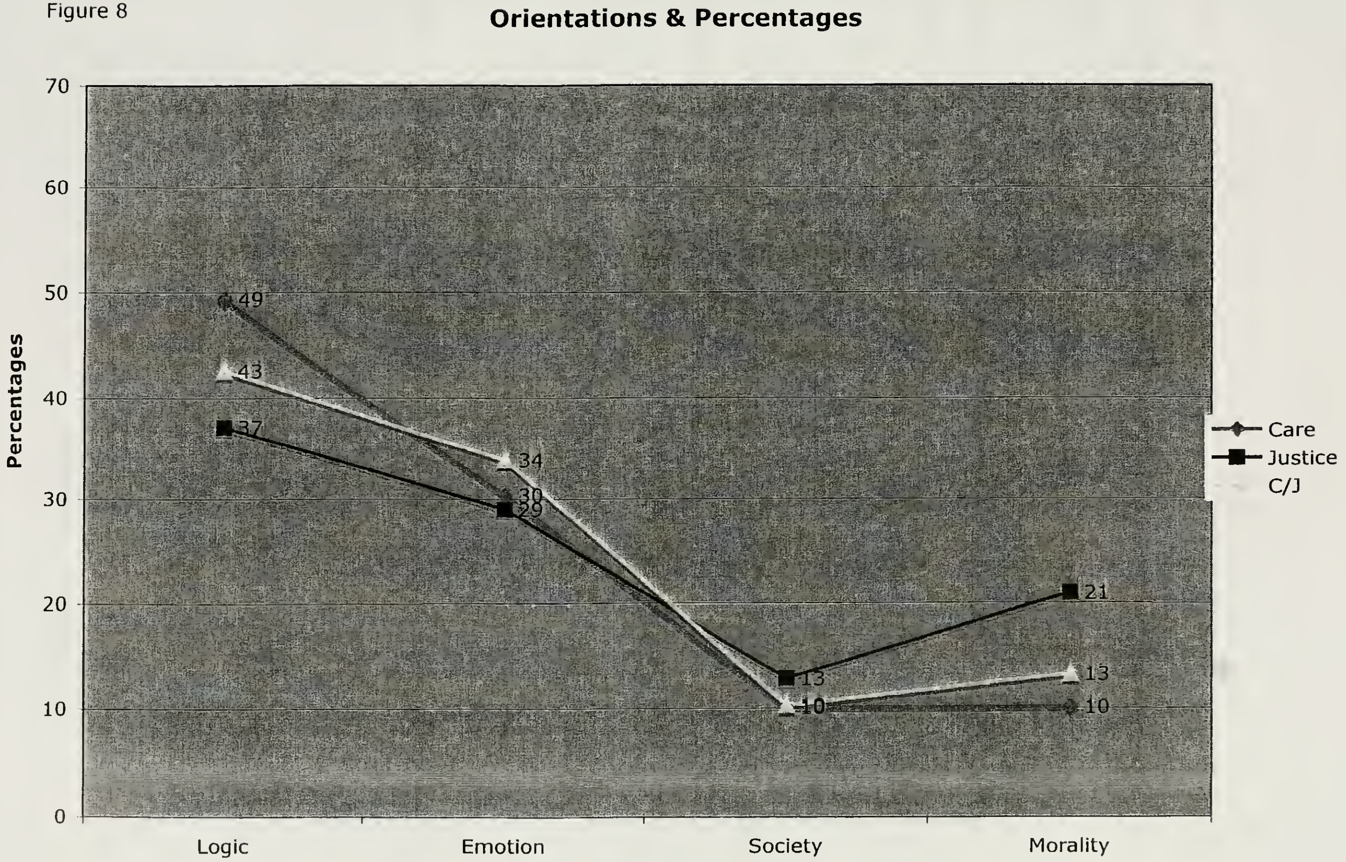

Orientations & Percentages
Percentages
70
60
50
40
30
20
10
0
Logic
Emotion
Society
Morality
Care
Justice
C/J
49
43
37
34
30
29
13
10
21
13
10

Figure Captions

Figure 1. Distributions of participants for Kohlberg's levels. Of the 12 participants, there were more participants ($n = 6$) at the conventional level (Level 2) than the preconventional level (Level 1).

Figure 2. Distributions of participants for Gilligan's moral orientations. The majority of the 12 participants ($n = 6$) were classified as a Care/Justice orientation. The remaining participants were evenly distributed between Care and Justice orientations.

Figure 3. Distributions of participants' moral orientation for the abortion dilemma. Participants' responses for the abortion dilemma were mainly classified as the Justice orientation ($n = 7$), with a few participants' responses for the abortion dilemma being classified as the Care orientation ($n = 4$).

Figure 4. Distributions of participants' moral orientation for the euthanasia dilemma. Participants' responses for the euthanasia dilemma were mainly classified as the Care orientation ($n = 9$), with a few participants' responses for the abortion dilemma being classified as the Justice orientation ($n = 2$).

Figure 5. Distributions of moral factors. Of the 277 moral factors, the "logic" moral factor was the most frequent among participants' responses (43%), but the "emotion" moral factor was almost as frequent (32%).

Figure 6. Percentage of moral factors by Kohlberg's levels of moral maturity. The preconventional and conventional levels of moral maturity showed similar distributions of moral factors, and both levels showed waning numbers of "society" and "morality" moral factors.

Figure 7. Percentage of moral factors by Kohlberg's stages of moral development. Of the three stages represented, participants at Stage 4 showed the most number of "logic" moral factors in comparison with Stages 2 and 3. Stages 2 and 3 showed similar distributions of "logic" and "emotion" moral factors. All stages showed low percentages of "society" and "morality" moral factors.

Figure 8. Percentage of moral factors by Gilligan's moral orientations. Participants given a Care orientation showed a higher percentage of "logic" moral factors than the Justice orientation. Also, the Care orientation's percentage of "logic" moral factors was higher than its percentage of "emotion" moral factors.

Acknowledgments

The author would like to thank the following people and groups for their help in completing this thesis: Dr. Tim Loboschefski, Dr. Brian Cusato, Courtney Patti, Megen Blaesing, Tina Seeley, all the participants, the Psychology Department, Dr. Daniel Mossler, and the Sweet Briar Honors Program. The following people and groups must also be thanked for their help and moral support: Interlibrary Loan and the Sweet Briar College Library, Thelma Jordan, Joe Malloy, Campus Safety, Dr. Matthew Calarco, Dr. Eric Casey, Dr. Marty Rojas, Chaplain Guy Brewer, The Honors Thesis Gang, Maud Pinter, and Lauren French.

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